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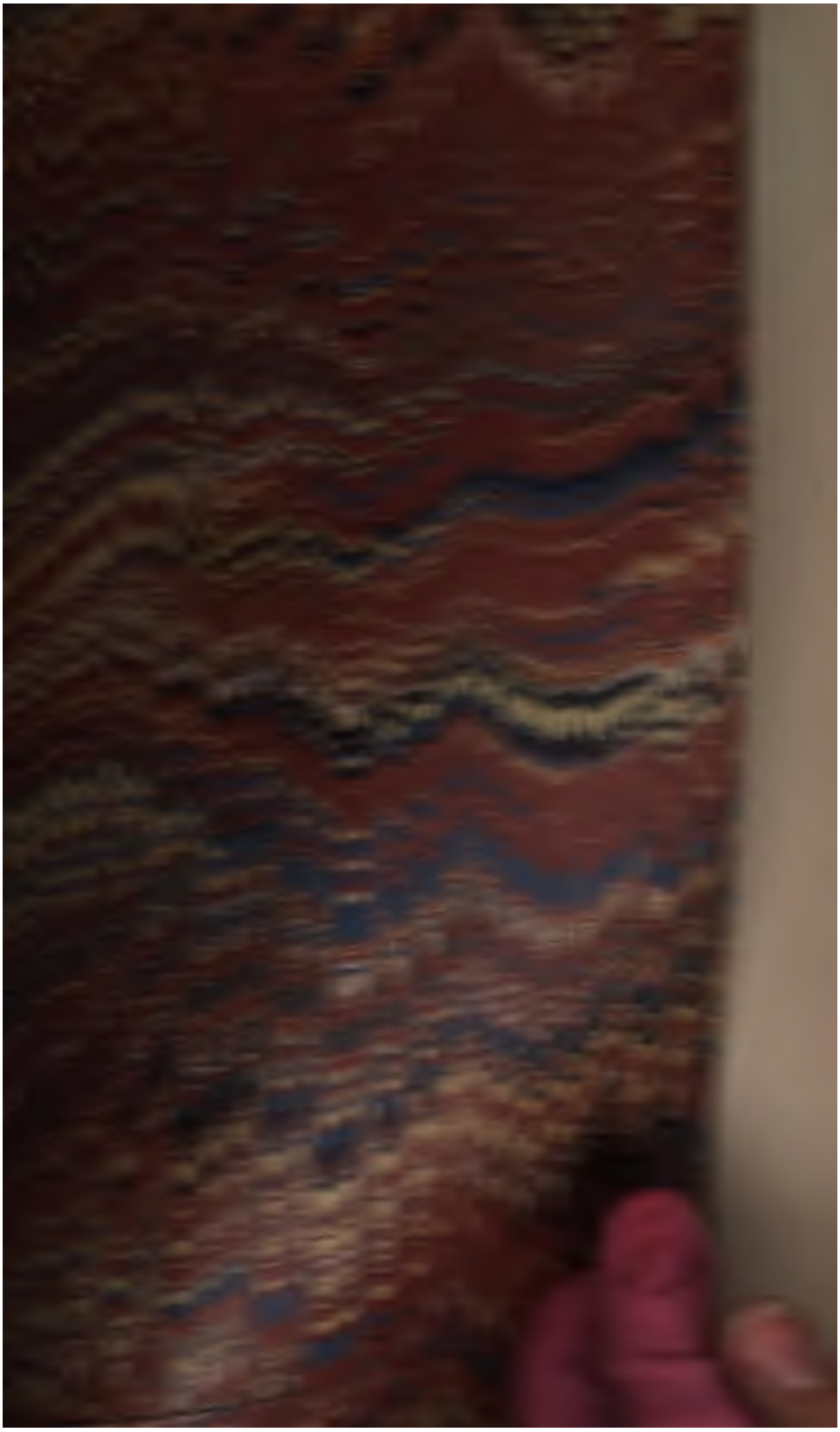

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PROCEEDINGS

OF THE

ACADEMY OF NATURAL SCIENCES

OF PHILADELPHIA.

VOL. II. 1844 & 1845.

PHILADELPHIA:
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INDEX TO VOLUME II.

Abert, Col. J, J., donations to library, 66.
Academy of Sciences of Munich, don. to lib., 57, 289.
American Philosophical Society, don. of Proceedings of. 25, 57, 192, 295; of Transactions of, 68; don. to lib., 64, 162.
Annales des Mines, 2, 23, 227, 273.
Anthony, J. G., don. to mus., 6, 161.
Ashmead, Samuel, don. to mus., 88, 223.
Asiatic Society of Bengal, don. to lib., 228.

Baker, Capt. H. F., don. to mus., 24, 67.
Bispham, Wm. L., don. to mus., 75.
Blanding, Dr. Wm., don. to mus., 71, 91, 191, 231, 277, 278.
Blanding, Mrs. Rachel, don. to mus., 208.
Bonaparte, Charles L., don. to lib., 71.
Boston Society of Natural History, don. of Journal of, 89, 231, 294; of Proceedings of, 273.
Breck, Samuel, don. to lib., 199.
Brown, Dr. Benj. B., don. to mus., 287; to lib., 291.
Browne Peter A., don. to lib., 25; to mus., 93, 257; remarks relative to the establishment of a zoological garden in the vicinity of Philadelphia, 67.
Bureau of Topographical Engineers, don. to lib., 162.
By-Laws, amendment to art. 8, chap. 7 of, 223.

Calcutta Journal of Natural History, don. of to lib. by editors, 129.
Campbell, Mrs. Sarah, don. to mus. 161.
Cassin, John, don. to mus., 66, 91, 94, 161, 208, 227, 287; on the great abundance of the Snow Owl in the vicinity of Philadelphia, &c., in the winter of 1843 and 1844, 19; description of a new vulture, 212.
Cautley, Capt. P. T., don. to mus., 259.
Clark, J., don. to mus., 87, 199.
Collins, Isaac, don. to mus., 95.
Committees, Scientific, for 1844–5; for 1845, 196.
Committee to consider the rules of the British Association regarding Zoological and Botanical nomenclature, 234.
Committee on Mr. E. Harris' paper on the geology of the Upper Missouri, remarks by, 239.
Committee on a paper, by Dr. Morton, describing a new species of Hippopotamus from Africa, 11; by Rev. Daniel Ziegler, describing new N. A. Coleoptera, 23, 226; by Mr. Haldeman, describing new insects, 23; by Col. Abert, on a species of Paludina, supposed by him to be new, 25; on a paper, by Dr. Ravenel, describing some fossils from the cretaceous strata of S. Carolina, 57; on some manuscript descriptions of insects, by the late Mr. Say, 68; on a paper by Dr. Melsheimer, describing new N. A. Coleoptera, 77; by Dr. Morton, describing the head of a fossil crocodile from New Jersey, 82; on an analysis, by Prof. Reid, of Sulphur Springs in New York State, 91; on observations on a second series of ancient Egyptian crania, by Dr. Morton, 94; on papers by Dr. Hallowell, describing new African reptiles, 22, 82, 130; by Mr. Conrad, describing eight new fossil shells

of the United States, 165; by Dr. Alfred T. King, describing fossil foot marks in Westmoreland Co., Pennsylvania, 168, 295; by Prof. Johnson, on the calorific powers of combustible bodies, 200; by Mr. Cassin, describing two raptorial birds, supposed to be new, 201; on Prof. Rogers' geological collection, 201; on a paper by Dr. Hallowell, describing new South American reptiles, 209; by Mr. Edward Harris, on the geology of the Upper Missouri, 224; by Mr. J. Tremper, on the geology of Seneca Lake, N. Y., 230; by Dr. R. W. Gibbes, describing the teeth of a new fossil animal from the green sand of South Carolina, 252; by Dr. E. Ravenel, describing a new scutella from the coast of S. Carolina, 253; by Mr. Wm. Gambel, describing new birds from Upper California, 262; by Mr. James D. Dana, describing a new genus of cyclopidæ, 284; by Mr. Edward Harris, describing a new species of Parus from the Upper Missouri, 298.

Conrad, T. A., don. to lib., 2; description of new fossil shells of the United States, 173.

Correspondents elected:
- Audubon, Victor, of New York, 256.
- Avogardo, Chev. Amedeo, of Turin, 17.
- Boudin, J. C. M., M.D., of Versailles, 325.
- Bourne, Wm. Oland, of Long Island, 22.
- Chevreul, M. E., of Paris, 256.
- Clot Bey M., of Egypt, 206.
- Gibbes, Lewis R., M. D., of Charleston, S. C., 90.
- Gibbes, R. W., M. D, of Columbia, S. C., 256.
- Haight, R. K., of New York, 85.
- Hayes, John Lord, of Portsmouth, N. H., 69.
- King, Alfred T., M. D., of Greensburg, Pa., 188.
- Le Conte, John L., M. D., of New York, 206.
- Morris, Rev. John G., of Baltimore, 6.
- Morphett, John, of Adelaide, S. Australia, 278.
- Müller, Prof. John, of Berlin, 258.
- Nott, Josiah C., M. D., of Mobile, Alabama, 272.
- Reinhardt, J. C., M.D., of Columbia, Pa., 230.
- Rich, William, of Boston, 250.
- Sullivant, Wm. S., of Ohio, 65.
- Taylor, Julius S., M.D., of Ohio, 272.
- Tremper, Jacob C., of Dresden, New York, 286.
- Tuomey, Wm., of Virginia, 258
- Wyman, Jeffries, M.D., of Boston, 133.
- Zeigler, Rev. Daniel, of York, Pa., 55.

Couper, J. Hamilton, don. to mus., 23.

Dana, James D., don. to lib., 7, 57; general views on the classification of animals, 281; description of a new genus of cyclopidæ, 285.

Day, Dr., don. to mus., 21.

De France, H. A., don. to mus., 293.

Dekay, Dr. James E., don. to lib., 289.

Delaware County Institute, don. to lib., 20.

Dix, Miss D. L., don. to lib., 73.

Donations to museum announced by curators, 127, 130, 166.

Drake, Dr. Daniel, don. to lib., 198.

Drinker, Capt. S., don. to mus., 165.

Dundas, James, don. to mus., 87, 127.

Durbin, Prof. J. P., don. to mus., 88.

Editors of Calcutta Journal of Natural History, don. to lib., 129.

Elwyn, Dr. A. L., don. to lib., 93.

Emmons, Dr. Ebenezer, don. to lib., 198.

Engelmann, Dr. Geo., don. to lib., 4 to mus., 19.

Espy, Prof., letter from to Prof. Johnson, communicating some facts intended to prove the possibility of producing rain by artificial means in time of drought, 91.

Evans, Owen, don. to mus., 73.

Flugel, F. G., don. to lib., 68.

Fory, John C., don. to mus., 285.

Gambel, Wm., don. to mus., 276, 278, 279; to lib., 293; description of new birds from Upper California, 263.

Gibbes, Dr. R. W., don. to mus., 251, 257; don. to lib., 251; description of the teeth of a new fossil animal

from the green sand of S. Carolina, 254.
Gibbons, Dr., on a diagram exhibiting the period of succession of fluctuations of the thermometer upon those of the barometer, 164.
Gilliss, Lieut. don. to lib., 294.
Gilpin, Mr., remarks on a rib bone of a cetaceous animal found in the State of Delaware, 166.
Giraud, Jacob P., don. to lib., 25.
Gliddon, George R., communicating portions of a letter received by him from a friend in Egypt, determining certain points in the ancient chronology of that country, 76; don. to mus., 225; to lib., 77, 295.
Goddard, Dr. Paul B., don. to mus., 277, 285.
Gould, Dr. A., don. to mus., 167; to lib., 88.
Graeff, Frederick, Jr., don. to mus., 91.
Graham, Major J. D., don. to lib., 76, 285.
Grant, Samuel, don. to mus., 64.
Gray, Dr. Asa, don. to lib., 278.

Haight, Richard K., don. to lib., 181.
Haldeman, S. S., don. to mus., 1; don. to lib., 2, 3, 87, 88; descriptions of insects, supposed to be new, 53; remarks on Corydalus cornutus, 192.
Hall, James, don. to lib., 87.
Hallowell, Dr. Edward, descriptions of new African reptiles, 58, 118, 169, 247; descriptions of new S. American reptiles, 241.
Hamilton, Mrs. Mary, don. to mus., 224.
Harris, Edward, don. to mus., 223, 278; don. to lib., 68; communication respecting Cymindis hamatus, Illig., 65; on the geology of the Upper Missouri, 235; description of a new Parus from Missouri, 300.
Hayes, John L., don. to lib., 77.
Hazard, Erskine, don. to mus., 197.
Hazard, Samuel, don. to lib., 231.
Heermann, A. L., don. to mus., 260, 275, 276, 290.
Hembel, William, don. to lib., 24, 207, 277.
Hill, Henry C., don. to mus., 289.
Histoire Nat de l'ile de Cuba, don. of by a club of members, 197.
Hodgson, Wm. B., don. to lib., 93.
Howard, J. G., don. to mus., 130.

Ingersoll, Joseph R., don. to lib., 21.
Insects and bird skins from Brazil, don. of by members, 66.
Irick, General, don. to mus., 71, 167.

Jack, William, don. to lib., 129.
Jackson, Dr. Chas. T., don. to lib., 225.
Jackson, Dr. J. B. S., don. to lib., 291.
Johns, Dr. Wm., don. to mus., 199.
Johnson, Prof. Walter R., don. to mus., 71, 88; to lib., 74, 88, 192, 225, 294; on the properties and habitudes of certain coals, 8; on different varieties of plumbago, 74; on some specimens of rocks from the White mountains, 89; on the spontaneous combustion of bituminous coal, 163; on the calorific powers of combustible bodies, 202; on the tendency to cohesion of metallic surfaces when under magnetic influences, 209; on the relative evaporation from land and water surfaces, 295; examination and analysis of alluvium of the Nile, 318.
Johnston, Dr. Westley, don. to mus., 131.
Journal of Agriculture and Science, don. of to lib. by editors, 198.

Kane, Dr. E. K., don. to mus., 165.
Kendall, James W., don. to mus., 73.
Kilvington, Robert, don. to mus., 71, 93, 260.
King, Dr. Alfred T., don. to mus., 131, 161; description of fossil foot marks in the carboniferous series of Westmoreland County, Pa., 175; description of fossil foot marks, 299.

Lahey, Dennis, don. to mus., 130.
Le Conte, J. L., description of new N. A. coleoptera, 48.
Leeds Philosoph. Soc. don. to lib., 198.
Leidy, Dr. Joseph, don. to mus., 277, 279; to lib., 277, 289; notes on White Pond, N. J., 279.
Lepsius, Prof., don. to mus., 197.
Le Seur, C. A., don. to mus., 224; to lib., 228.
Letters from:
Abert, Col. J. J., 25.
Adams, C. B., 299.
Audubon, J. J., 256.
Audubon, Victor, 260.

Bailey, Prof., 284.
Benton, N. S., 295.
Bronn, H. G., 3.
Cautley, Capt. P. T., 25.
Cook, G. H., 65, 72.
Couper, J. Hamilton, 24.
Dana, James D., 234.
Directors of Museum d'Histoire Nat. à Paris, 232.
Dunglison, Dr. R., 253.
Gibbes, Dr. Lewis R., 93.
Gibbes, Dr. R. W., 257.
Gliddon, George R., 252.
Haight, Richard K., 193.
Hall, James, 88.
Haldeman, S. S., 89, 162.
Hayes, John L., 77.
Herbert, Rev. Wm., 57.
Hodgson, Wm. B., 5.
Humboldt, Baron Alexander, 22.
Johnston, Prof. John, 3.
Kinberg, J. G. H., 3, 167.
King, Dr. Alfred T., 162, 198.
Kippist, Richard, 76.
Le Conte, John L., 133, 226.
Lepsius, Dr. Richard, 126, 193.
Le Seuer, Chas. A., 224.
Librarian of Congress, 191.
Longchamps, M. de, 4, 198.
Maclure, Alexander, 7, 69.
Markoe, Francis, 72.
Maximilian, Prince de Wied, 72.
McCall, Dr. A., 289.
Melsheimer, Dr. F. E., 7.
Mighels, Dr. J. W., 3.
Morris, Rev. Dr., 10, 22.
Ombrosi, James, 63.
Pickering, Dr. Charles, 20, 23.
President of Harvard University, 2.
Ravenel, Dr. Edmund, 57, 232
Redfield, J. H., 94.
Rich, William, 258.
Scheepmaker, M., 23.
Silliman, Benj., Jr., 234,
Strain, Isaac G., 11, 63.
Sullivant, Wm. S., 88.
Tamnau, Dr. Fred., Jr., 2.
Tappan, Benjamin, 72.
Taylor, Dr. Julius S., 224, 258 276.
Tremper, Jacob, 165, 208, 294, 298.
Tschudi, Dr., 132.
Von Martius, Dr. C., 66.
Zeigler, Rev. Daniel, 211.
Letters from Societies:
American Philosophical Society, 3, 10, 25, 82, 162, 192, 208, 260,
Asiatic Society of Bengal, 129, 226.
Boston Society of Natural History, 252.
Georgia Historical Society, 191.
Linnean Society of London, 8.
London Botanical Society, 68, 77.
Royal Academy of Sciences and Belles Lettres, Brussels, 4.
Royal Scottish Society of Arts, Edinburgh, 257.
Zoological Society of London, 162.
Library Company of Philadelphia, don. to lib., 21.
Linnean Association of Pennsylvania College, don. of journal of, 225, 232, 262, 278, 291.
Linnean Society of London, don. of Transactions of, 198; of Proceedings of, 198.
Longchamps, M. de, don. to lib., 4, 197.

Maclure, Alexander, don. to lib., 162.
Mease, Dr. J, don. to mus., 8.
Melsheimer, Dr. F. E., descriptions of new N. A. coleoptera, 26, 98, 134, 213, 392.
Members elected:
Blake, C. M., 77.
Cuesta, Fernando de, 133.
Darrach, Wm., M. D., 65.
Dundas, James, 85.
Frost, John, 90.
Heermann, A. L., 230.
Keim, George M., 133.
Leaming, J. Fisher, 55.
Leidy Joseph, M. D., 258.
Moss, Theodore F., 256.
Percival, Thos. C., 196.
Woodhouse, Samuel W., 293.
Mighles, Dr. J. W., don. to mus., 3, 21.
Moricand, M., don. to lib., 129.
Morphett, John, don. to mus., 251.
Morton, Dr., S. G., don. to mus., 1, 277; don. to lib., 4. 21, 72, 75; on a new species of hippopotamus, 14; on the skull of a Hottentot, 64; description of the head of a fossil crocodile from New Jersey, 82; announcement of decease of Miss Anna Maclure, 90; on a second series of ancient Egyptian crania, 122; announcement of decease of Nathan Dunn, 130; remarks on some fossil bones of Mosasaurus from New Jersey, 132; on the

internal capacity, &c. of some African crania, 168; on the crania of an ancient Mexican, a Lenape, and a Congo negro, 231; on the crania of two ancient Peruvians, two Indian mound skulls, a Hottentot, a Mozambique negro, and four mummied Egyptian heads, 274; on the crania of two New Hollanders, 292.
Moss, Theodore F., don. to mus., 260.
Murphy, Dr., F. G., don. to lib., 199.

Natural History Society of Geneva, don. of memoirs of, 129.
National Institute at Washington, don. of bulletin of, 231.
Nicholson, Dr. Charles, don. to mus., 290.

Oakford, S. J., don. to lib., 24.
Officers for 1845, 187; for 1846, 235.
Owen, Dr. D. D., don. to lib., 7, 162, 293.

Pagani, M., don. to lib., 225.
Pauthier, G., don. to lib., 192.
Peale, T. R., don. to mus., 19.
Pennock, Dr. C. W., don. to mus., 131.
Percival Miss, don. to mus., 75.
Percival, Thos. C., don. to lib., 252; to mus., 259, 273.
Peterson, Mr., don. to mus., 64.
Phillips, Prof. John, don. to lib., 20.
Piddington, Henry, don. to lib., 72.
Pitcher, Dr., don to mus., 284.
Prince de Wied, don. to lib., 72.
Providence Franklin Society, don. to lib., 231.

Ravenel, Dr. Edmund, description of new fossil organic remains from the Eocene of S. Carolina, 96; description of a new recent scutella from the coast of S. Carolina, 253; don. to mus. 260.
Recording Secretary, report of, for 1844, 180.
Reid, Prof., analysis of sulphur springs in State of New York, 120.
Regents of University of New York, don. to lib., 57, 232.
Resolutions: to present to Sir George Von Jæger, of Germany, a copy of the Journal of the Academy, 8; on the occasion of the decease of Dr. M. Burrough, 10; to present to Mrs. Lucy W. Say, and to Mr. Isaac G. Strain, bound copies of vol. 1 of proceedings, 65; to present to Troy Lyceum of Natural History, certain portions of the Journal, 65; to present to Mrs. Say, a copy of Maclure's Opinions, 65; to present to Royal Academy of Munich, the publications of the Academy, 66; of thanks to Alexander Maclure, 69; of thanks to the Prince de Wied, 73; of thanks to General Irick, 73; to present to the Georgia Historical Society a copy of Harlan's Med. and Phys. Researches, 95; of thanks to Dr. Thos. B. Wilson, 130; to present to Dr. Tschudi, of Hamburg, a complete copy of the Proceedings, 133; authorising the Librarian and Library Committee to be furnished with stamps for the books, 199; to appoint a committee to confer with Prof. Rogers, respecting the deposit in the museum of his State Geological collection, 201; of thanks to Wm. Hembel, for a don. to lib., 208; to transmit to the Swiss General Association of Naturalists, copies of the Journal and Proceedings, 211; to present to the Historical Society of Pennsylvania a copy of the Proceedings, 211; to present to the Museum d'histoire Nat. à Paris a copy of the Journal and Proceedings, 333; of thanks to Dr. Julius S. Taylor, 258; of thanks to Richard C. Taylor, Esq., 261; of thanks to John C. Fory, 285; authorising the publication of a new list of members and correspondents of the Academy, 324; to furnish to correspondents copies of the catalogue of library, 324.
Rice, Wm. M., don. to mus., 8.
Richard, J. H., don. to mus., 262.
Riggs, Samuel W., don. to mus., 251.
Rogers, Henry D., don. to mus., 209; to lib., 88; on a specimen of Oolite rock from Florida, 210.
Royal Bavarian Academy of Sciences, don. to lib., 93.
Ruffin, Edmund, don. to lib., 251.

Savage, Rev. Thomas S., don. to mus., 1.

Say, Mrs. L. W., don. to mus., 4; don. to lib., 68; of manuscript descriptions of insects, by late Mr. Say, 68.
Schembri, Antonio, don. to lib., 3.
Short, C. W., don. to lib., 211 262.
Silliman's Journal, don. of by editors, 4, 22, 77, 129, 197, 228, 259, 285.
Snider, Jacob, Jr., don. to mus., 160.
Stephens, Horatio S., don. to mus., 94, 259.

Tappan, Hon. Benj., don. to mus., 71.
Taylor, Dr. Julius S., don. to mus., 224 257.
Taylor, Richard C., don. to mus., 279; don. to lib., 225, 298; cabinet of European fossils, deposited by, 261; remarks thereon, by Dr. Morton, 261.
Titus, Theodore, don. to mus., 293.
Townsend, J. K., don. to mus., 278.
Treasnry department, U. S., don. to lib., 132, 259.
Tremper, Jacob, don. to mus., 227; to lib., 294.
Tschudi, Dr. J. J., don. to lib., 132.
Tyson, Job R., don. to lib., 211.

Vale, Mr. G., of New York, on an improved globe and celestial sphere of his invention, 131.
Van Cleve, J. W., don. to lib., 225.

Watson, Dr. Gavin, don. to mus., 4, 7, 71, 91, 93, 95, 197, 273; to lib, 7.
Wetherill, J. Price, don. to lib., 197.
Wilson, Dr. Thos. B., don. to mus., 19, 127; to lib., 232.
Wood, Prof. George B., don. to mus., 160.
Wood, Wm. S., don. to mus., 191.
Woodhouse, Samuel W., don. to mus., 21, 166, 288, 291.

Zantzinger, Dr. Wm. S., don. to mus., 95, 277; communication from, relative to the cow tree of S. America, 278.
Zeigler, Rev. Daniel, descriptions of new N. A. Coleoptera, 43, 266.
Zoological Society of London, don. of Transactions of, 161; of Proceedings of, 161.

PROCEEDINGS

OF THE

ACADEMY OF NATURAL SCIENCES

OF PHILADELPHIA.

VOL. II. JAN. AND FEB., 1844. No. 1.

Stated Meeting, January 2, 1844.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

Two specimens of Unio pilaris, Lea, from French Broad River, Tennessee. From Mr. Haldeman.

Two specimens of fossil teeth of a species of Squalus, from the marl region of New Jersey. From Mr. Kilvington.

Five species of Hemiptera, and thirty species of Coleoptera, (principally Lamellicornia,) including the genera Goliathus, (male and female,) Cetonia, Passalus, Scarabœus, Cicindela, &c., from Africa. From the Rev. Thomas S. Savage, M. D., of Cape Palmas, Africa.

Also the following shells from West Africa, from the same donor: Arca senilis, Galatea radiata, Cerithium muricatum, Donax denticulata, Sanguinolaria rosea, Lucina spheroides, Terebra cærulescens, Monodonta guinensis, Columbella mercatoria, Nerita atrata, Purpura meritoida, Helix Blandingiana, and others.

Two remarkably large and perfect skulls of Hippopotamus amphibius, Linn. (H. capensis, Desmoulin,) from Africa. Deposited by Dr. Morton.

DONATIONS TO LIBRARY.

Zoological contributions, No. 2. By S. S. Haldeman. Dec., 1843. From the Author.

A series of printed labels for Egyptian and Austrian plants. From Mr. Haldeman.

Annales des Mines. 4me. Serie. Tome 3. Liv. 1. In exchange.

Monography of the Unionidæ. No. 13. By T. A. Conrad. From the Author.

Boston Journal of Natural History. Vol. IV. No. 3. 1843. From the Boston Society of Natural History.

A letter was read from the President of Harvard University, Cambridge, Mass., dated November 11th, 1843, acknowledging the reception, by the Corporation, of a donation from the Academy of several volumes of its Journal, and an entire copy of the Proceedings.

A letter was read from Dr. Frederick Tamnau, of Berlin, soliciting an exchange of Minerals of this country for a large number of those of Germany, &c., sent by him to the Academy. Referred to the Geological and Mineralogical Committee.

Dr. Morton (Prof. Johnson in the Chair,) exhibited the cranium of a species of Hippopotamus, supposed by him to be new, found on the banks of St. Paul's river, West Africa, and brought to this country by Dr. S. M. E. Goheen. Dr. Morton made some brief general remarks in relation to this specimen, and pointed out some of the prominent characters by which it was distinguished from other well known and described species, and promised a fuller and more accurate description to the Academy, in a written form at a future meeting.

Stated Meeting, January 16, 1844.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO LIBRARY.

Catalogue of the Marine and terrestrial shells of the State of Maine and adjacent ocean. By J. W. Mighels, M. D. From the Author.

The Encyclopædia of Plants, &c. Edited by J. C. Loudon, F. L. S., &c. 8vo. pp. 1159. London, 1836. From Mr. Haldeman, in exchange.

Catologo Ornitologico del gruppo di Malta; da Antonio Schembri. Malta, 1843. From the Author.

Zoological contributions. By S. S. Haldeman. No. 3. Jan., 1844. From the Author.

A letter was read from Dr. J. W. Mighels, dated Portland, Maine, January 6, 1844, returning acknowledgements for his election as a Correspondent, and in reference to his donation of this evening.

A communication from the American Philosophical Society, acknowledging the receipt of Nos. 30, 31, of the Proceedings.

A letter from Mr. J. G. H. Kinberg, addressed to the Curators, dated Lund, Sweden, 20th October, 1843, stating that a large consignment of objects of Natural History was shortly to be sent by him to this country, and requesting exchanges with the Academy.

Also a letter from H. G. Bronn, addressed to the Curators, dated Heidelberg, December 1, 1843, proposing exchanges of birds and shells.

A letter from Prof. John Johnston, of Middletown, Conn., dated January, 1844, acknowledging the receipt of his notice of election as a Correspondent.

Stated Meeting, January 23, 1844.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

Calcareous Touffa, with impressions of leaves, from Germany. Presented by Mr. Kilvington.

A mounted specimen of Fiber zibethicus, from the vicinity of Philadelphia. From the same.

A collection, in spirits, of native insects. From Dr. Watson.

A collection of about 60 species of American shells, labelled and arranged, with references, by Mr. Phillips; being the specimens from which the late Mr. Say drew up his original descriptions. Presented by Mrs. Say through Mr. Phillips.

DONATIONS TO LIBRARY.

American Journal of Science and Arts: conducted by the Messrs. Silliman. Vol. 46, No. 1. January, 1844. From the Editors.

A monography of the North American species of the genus Equisetum. By Prof. Alexander Braun, of Carlshue, Germany. Translated from the author's manuscript, and with some additions, by George Engelmann, M. D., of St. Louis. From Dr. Engelmann.

Six No's. of the "Annales des Sciences Naturelles," with the plates, &c. From Dr. Morton in exchange

Faune Belge. 1e. partie, &c. Par Edmund de Selys Longchamps. Leige, 1842. From the Author.

Letters were read from the Secretary of the Royal Academy of Sciences and Belles Lettres of Brussels, announcing the reception of several publications of this institution from the Corresponding Secretary.

From M. de Longchamps, dated Leige, 14th April, 1843, acknowledging the receipt of a number of the Academy's publications from the Corresponding Secretary: and in refer-

ence to the donation of his Fauna, received this evening. A list was also added of European Mammiferæ, which he was desirous of exchanging for similar objects of this country.

From Mr. Wm. B. Hodgson, dated Savannah, January 16th, 1844, returning acknowledgments for his election as a Correspondent.

Mr. Haldeman presented a corrected copy of his paper on Daphnia and Limnadia, (published in a former No. of the Proceedings,) with the addition of a new species of the former genus. Referred to the Publication Committee.

On motion of Mr. Haldeman, Resolved, That the authors of written communications, which are published in the Proceedings, be allowed six extra copies of the number in which their communications appear.

Meeting for Business, January 30, 1844.

VICE PRESIDENT MORTON in the Chair.

The report of the Corresponding Secretary, and the annual Reports of the Treasurer, of the Publication Committee, and of the Librarian, having been severally read and adopted, the Society proceeded to an election for Standing Committees for the year 1844. The tellers reported the following result:

COMMITTEES FOR 1844.

Geology and Mineralogy.

J. Price Wetherill, William S. Vaux,
Henry D. Rogers, T. A. Conrad,
Joseph A. Clay, Walter R. Johnson,
Willard M. Rice.

Zoology.

S. G. Morton, M. D., Wm. S. Zantzinger, M. D.,
Henry McMurtrie, M. D. S. S. Haldeman,
John S. Phillips, Edward Harris,
John Cassin.

Botany.

Peter A. Browne, Wm. S. Zantzinger, M. D.,
Robert Bridges, M. D., Gavin Watson, M. D.
Robert Kilvington.

Physics.

Isaiah Lukens, Paul B. Goddard, M. D.,
Walter R. Johnson, John S. Phillips,
Edmund Draper.

Library.

A. L. Elwyn, M. D. A. D. Chaloner, M. D.,
Robert Bridges, M. D., Wm. S. Zantzinger, M. D.,
Joseph Carson, M. D.

Committee on Proceedings.

S. G. Morton, M. D., } Corresponding and
John S. Phillips, } Recording Secretaries,
A. L. Elwyn, M. D., } *ex-officio.*

The Rev. John G. Morris, D. D, of Baltimore, was then elected a Correspondent of the Academy.

Stated Meeting, February 6, 1844.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

The following collection of Terrestrial and Fluviatile Shells of Ohio. From Mr. John G. Anthony, of Cincinnati.

Unio alatus, Say, 3 specimens, (1 fem.)—U. bullatus, Raf., 9 sp. (U. prasinus, Conrad, U. Schoolcraftensis, Lea, 1 sp.)—U. fasciolaris, Raf., 1 sp. (U. phaseolus, Hildreth, 2 sp.)—U. striatus, Raf., (U. Cooperianus, Lea,) 1 sp.—U. rectus, Lam. 3 sp.—U. ruber, Raf., (red var.) 3 sp. (U. coccineus, Hildreth, (white var.) 2 sp).—U. crassus, Say, 5 sp.—U. ovatus, Say, 4 sp. (1 fem.) U. cylindricus, Say, 3 sp.—U. gibbosus, Raf.

5 sp. (U. perplexus, Lea, (fem.) 1 sp.)—U. truncatus, Raf., (U. elegans, Lea,) 1 sp.—U. triqueter, Raf. 5 sp. (U. triangularis, Barnes, (fem.) 1 sp.—U. Sayi, Ward, 3 sp.—U. teres, Raf. 1 sp. (U. anodontoides, Lea, (male) 1 sp.)—U. verrucosus, Raf. 3 sp. U. tuberculatus, Barnes, (fem.) 1 sp.)—U. subrostratus, Say, 1 sp.) U. Iris, Lea, 1 sp.—U. reflexus, Raf. 5 sp.—Anadonta grandis, Say, 1 sp. (A. plana, Lea. 1 sp.)—A. imbecillis, Say, (A. incerta, Lea,) 1 sp.—A cataracta, Say, (var. salmonea, Lea,) 4 sp.—A. ferrussaciana, Lea, 1 sp.—Alasmodonta truncata, Say, 3 sp.—Melania varicosa, Ward, 3 sp.—M. depygis, Say, 12 sp.—Anculosa prærorsa, Say, (Melania Cincinnatiensis, Lea,) 16 sp.—A. costata, Anthony, (Melania occidentalis, Lea,) 16 sp.—Helix alternata, Say, 12 sp.—H. solitaria, Say, 3 sp.—H. hirsuta, Say, 3 sp.—H. labyrinthica, Say, 7 sp.—H. interna, Say, 10 sp.—H. minuscula, Binney, 20 sp.—Planorbis concavus, Anthony, 8 sp—Amnicola Cincinnatiensis, Anthony, 12 sp.—A. lapidaria, Say, 12 sp.—Pupa armifera, Say, 20 sp.—P. contracta, Say, 25 sp.

Cranium of Delphinus delphis. From Dr. Watson.

DONATIONS TO LIBRARY.

Catalogue of the Terrestrial and Fluviatile Shells of Ohio. By J. G. Anthony. From the Author.

Reply to Mr. Couthouy's vindication against the charge of plagiarism. By James D. Dana, geologist of the U. S. exploring expedition. From the Author.

Review of the New York Geological Reports. By David Dale Owen, M. D. From the Author.

A letter was read from Dr. F. E. Melsheimer, dated Dover, Pennsylvania, January 15, 1844, acknowledging the receipt of his diploma, and notice of election as a correspondent.

Also a letter from Mr. Alexander Maclure, addressed to Dr. Morton, dated New Harmony, Indiana, 25th January, 1844, in reference to the recent destruction by fire of his dwelling house; but also containing the gratifying informa-

tion that the valuable library had been rescued from the flames.

The Corresponding Secretary read a letter from the Secretary of the Linnean Society of London, dated November 23, 1843, acknowledging the reception of Nos. 26 to 29 of the Proceedings of the Academy.

On motion of Prof. Johnson, Resolved, That the Publication Committee be authorized to present to Sir George Von Jaeger, of Wurtemberg, in Germany, the 2d Part of Vol. 8, of the Journal of the Academy.

Stated Meeting, February 13, 1844.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

Five specimens of Fluate of Lime, from Lowville, New York. Presented by Mr. W. M. Rice.

Specimen, of large size, of Sulphuret of Copper, from Pennsylvania. From Dr. James Mease.

Fossil fucoid impressions, from Mifflin county, Pennsylvania. Deposited by Dr. Mease.

Professor Johnson communicated some observations in relation to the properties and habitudes of different varieties of coal.

1. He gave the results of some recent analysis of coal, which strongly confirm the position which he had previously advanced, viz.: that in coals from the same coal district, and where that part of the mineral substance which is combustible may be considered as similiarly constituted, the *density* of different specimens may be considered as the index to their relative impurity.

From seven samples of coal from different mining districts were taken, at random, specimens for analysis.

						per cent.
From the first sample	specimen	*a*	had a sp. gr.	1.438,	and gave of ashes,	18.99
	specimen	*b*	"	1.424	" "	18,318
" second do.	"	*a*	"	1.322	" "	5.653
	"	*b*	"	1.305	" "	5.239
" third do.	"	*a*	"	1.304	" "	4.081
	"	*b*	"	1.309	" "	6.519
" fourth do.	"	*a*	"	1.339	" "	9.109
	"	*b*	"	1.325	" "	7.398
" fifth do.	"	*a*	"	1.315	" "	10.090
	"	*b*	"	1.335	" "	11.071
" sixth do.	"	*a*	"	1 347	" "	13.768
	"	*b*	"	1.329	" "	11.071
" seventh do.	"	*a*	"	1.511	" "	21.250
	"	*b*	"	1.289	" "	6.080

2. He also called attention to the fact that, from the same hand specimen, may often be obtained widely different results by analysis. A small specimen was shown, in which were displayed most decided differences of structure, lustre, colour, character of powder, amount of volatile matter, amount and character of impurities. This was a specimen of coal from the Cumberland coal field of Maryland—in which a portion was columnar and crystalline in form—of a deep jet black colour, shining and friable, giving a brown powder, and when coked, yielding a highly intumescent porous mass, and leaving, when completely incinerated, only 1.754 per cent. of reddish yellow or fawn coloured ashes, exceedingly light, and liable to be carried away by the slightest motion of air. The same part yielded 18.28 per cent. of volatile matter, and consequently left 79.966 per cent of fixed carbon. The other part of the specimen was amorphous in structure, tough in consistence, dull, and almost destitute of lustre, yielding when completely pulverized, an almost black powder. It gives, when incinerated, 14.736 per cent. of ashes, of a greenish white colour, very dense, and cohering slightly when strongly heated. Its volatile matter is 15.976 per cent and consequently the fixed carbon 69.288. The coke produced swells more or less, according to the rapidity of the application of heat.

3. He adverted to the designations red and white ash coals, and exhibited proofs that mere analysis, on a minute scale, is liable to mislead us in regard to the true character of the earthy residua of the coals in question. He exhibited a sample of ashes and of clinker, from Lackawanna anthracite, obtained from the combustion of two tons of that coal; and also a specimen of ashes from the analysis of a hand specimen,—the former being dark brownish red, and the latter, almost perfectly white.

4. He presented evidences of the effect of the rate of heating on the amount and character of the coke produced from a given weight of coal of the same kind, showing that when a brisk and intense action of heat is made the means

of coking the coal, a considerably greater amount of volatile matter is expelled than when a slow application of heat gradually drives off the matter volatilizable by that principle alone.

The Chairman announced to the meeting the recent decease (on the 10th inst., of Dr. M. Burrough, late a member of this Institution, and one of its most zealous and active friends, and a large contributor to its collections in all the departments of Natural Science.

Whereupon the following Resolutions presented by Professor Johnson, were unanimously adopted:

Resolved, That the members of this Academy have hear with unfeigned regret of the decease of our late valued and highly respected member, Dr. Marmaduke Burrough, whose zeal in the cause of Natural Science, persevering industry in the prosecution of its various departments, and deep interest in the welfare of this Institution, have laid it under numerous and lasting obligation to our deceased associate.

Resolved, That the members of this Academy deplore the loss of Dr. Burrough, not only as the ardent prosecutor of scientific researches, but as the undeviating man of honor, and highly accomplished gentleman.

Resolved, That the Vice President of this Society, Dr. S. G. Morton, be requested to communicate to the family of the deceased a copy of the foregoing Resolutions.

Stated Meeting, February 20, 1844.

MR. LUKENS in the Chair.

A communication was read from the American Philosoph. Society acknowledging the receipt of Nos. 32, 33 of the Proceedings.

A letter was read from the Rev. John G. Morris, D. D., of Baltimore, dated February 19, 1844, acknowledging the reception of his notice of election as a correspondent.

A paper, by Dr. Morton, describing a supposed new species of Hippopotamus from the River St. Paul's, W. Africa, was read, and referred to the following committee: Mr. Conrad, Dr. Goddard, and Prof. Johnson.

A letter was read from Mr. Isaac G. Strain, of the U. S. Navy,* Corresponding Member of the Academy, addressed to Dr. Morton as Vice President, giving the synopsis of the translation, by himself, of a letter from Dr. Lund, of the Royal Society of Antiquarians at Copenhagen, to the Historical and Geographical Society of Brazil, on the subject of some organic remains recently discovered in the calcareous rocks in the Province of Minas Geraes, Brazil.

[The interesting and novel information contained in Dr. Lund's letter has induced the Committee on Proceedings to submit for publication the entire translation of Mr. Strain.]

RIO DE JANEIRO, 7th December, 1843.

My Dear Sir,—Knowing the interest you, as well as the other members of the Academy, take in any subject tending to throw light upon the history of the human race, I take the liberty of giving you a synopsis of a translation I have made of a letter addressed by Dr. Lund, of the Royal Society of Antiquarians at Copenhagen, to the Historical and Geographical Society of Brazil, of which he is an honorary member.

Dr. Lund has for some time been pursuing his investigations in the Province of Minas Geraes; and has devoted his attention particularly to the fossil remains found in the calcareous rocks of that region. At present he is engaged in the publication of a work entitled, *Blik paa Braziliens Dyreverden*, or a View of the animal creation which inhabited Brazil immediately preceding the present state of things. The Doctor states it to have been his wish to have

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* Mr. Strain left the United States in the summer of last year in a Government vessel for South America, as the head of a scientific exploring party into a portion of the interior of that country, and which promises important and interesting results. Mr. S. goes out under the auspices of the U. S. Government, aided also by members of this Institution and other individuals, and is amply furnished with every requisite for the successful prosecution of his hazardous and arduous undertaking. Since his arrival at Rio, he has also been fortunate enough to obtain every facility and encouragement from the Imperial Government. The letter above was written on the eve of his departure on his journey.

published in French; but not being ready, he immediately communicated with the Geographical Institute, with the remark, however, that being written in a language little known, he expects to ensure but few readers. He commences by referring to the question of the coexistence of man with the extinct Terrestrial mammiferous animals, as a point which the Naturalists of the old world have not been able to resolve decisively: that some few facts appear favourable to an affirmative, but more to a negative solution; that, though he has had an opportunity to submit the question to a new examination in this part of the world, he has not had proofs to arrive at a definite result, although his labors in Zoology have terminated most happily. The geological archives of the history of our planet are found (says the learned Doctor) in the caverns of the calcareous rocks, which enter, as a constituent part, into the most extensive formations in the interior of Brazil. The animals whose remains he has met, are for the most part different from those which actually exist on the surface, showing that they belong to a distinct creation.

He has already examined nearly two hundred caverns. The species of animals he has examined, of the mammiferous class alone, number one hundred and fifteen, which much exceeds the number now existing of this class, which he has reduced to eighty-eight.

From the mutilated state in which they were generally found, it appears probable that they owe their introduction to the beasts of prey of those times—the denizens of those caverns—who carried them there to devour them. In the midst of these testimonials of an order of things differing from the actual, he had not the slightest vestige of the existence of man; and if man *had* existed, how could he have escaped the fate of animals stronger than he, who were victims of these ferocious and gigantic beasts of prey. This evidence he thought sufficient to decide the question negatively, when he unexpectedly met the first remains of the human species under circumstances which, at least, admit of a contrary solution. He found these remains in a cavern which contained mixed with them bones of animals decidedly extinct; (Platyonix Bucklandii, Chlamydotherium Humboltii, C. majus, Dasypus sulcatus, Hydrochaerus sulcidens, &c.) a circumstance which ought to call attention to these interesting relics. Besides, they present all the characters of really fossil bones. They were in part petrified, and in part penetrated with iron particles, which gave to them a metallic lustre, resembling bronze, and at the same time an extraordinary weight. Of the immense age of these remains there can be no doubt; but, upon the question of the coexistence with animals whose remains were found with them, we cannot, unfortunately, arrive at a definite conclusion, as the cave is situated on the margin of a lake whose waters rise annually, and in the rainy season enter it; so it is possible the remains of animals, now existing, might have been more recently introduced, and mixed with those already deposited. These bones are in different states of preservation; some differing little from new bones, while others approximate to the sub-metallic state already referred to; but the greater number occupy a grade of decomposition intermediate between the two extremes.

A similar difference, but less conceivable, he noted among the human bones,

proving a diversity of ages, while all showed an antiquity; making them most interesting, even if they do not solve the question of coexistence. In Europe, (says the Doctor,) the remains of the great species of terrestrial mammiferous animals are the only proof of their existence; as no mention is made of them in history; consequently their extinction dates back more than three thousand years. Applying the same result to the extinct species of Brazil, with which they agree in their state, and attributing to the human bones found in a state perfectly analogous to those which characterise these fossils, we take for them an age of thirty centuries and upward. Admitting, then, the proofs of these documents, the population of Brazil is derived from very remote times, and undoubtedly anterior to the time of history.

The question then arises, who were these people? what their mode of life? of what race? and what their intellectual perfection? The answers to these questions are, happily, less difficult and doubtful. He examined various crania, more or less perfect, in order to determine the place they ought to occupy in the system of Anthropology. The narrowness of the forehead, the prominence of the zygomatic bones, the facial angle, the maxillary and orbital conformation, all assign to these crania a place among the characteristics of the American race. And it is known, says the Doctor, in continuation, that the race which approximates nearest to this is the Mongolian; and the most distinctive and salient character by which we distinguish between them, is by the greater depression of the forehead of the former. In this point of organization, these ancient crania show not only the peculiarity of the American race, but this peculiarity, in many instances, in an excessive degree; even to the entire disappearance of the forehead. We must allow, then, that the people who occupied this country in those remote times, were of the same race as those who inhabited it at the time of the conquest. We know that the human figures found sculptured in the ancient monuments of Mexico represent, for the greater part, a singular conformation of head,—being entirely without forehead,—the cranium retreating backward immediately above the superciliary arch. This anomaly, which is generally attributed to an artificial disfiguration of the head, or the taste of the artist, now admits a more natural explanation; it being now proved, by these authentic documents, that there really existed on this continent a race exhibiting this anomalous conformation. The skeletons, which were of both sexes, were of the ordinary height, although two of the men were above the common stature. These heads, according to the received opinions in Craniology, could not have occupied a high position in intellectual standing. This opinion is corroborated by finding an instrument of imperfect construction joined with the skeletons. This instrument is simply a smooth stone, of about ten inches in circumference, evidently intended to bruise seeds or hard substances.

In other caverns he has found other human bones, which show equally the characteristics of fossils, being deprived of all the gelatinous parts, and consequently very brittle and porous in the fracture. They were, unfortunately, unaccompanied by the bones of any other animals, so that the principal point of the question remains undecided; although they go to prove the antiquity and prolonged existence of the human race on this continent.

The above, then, my dear Sir, is a brief synopsis of Dr. Lund's letter, which may, perhaps, have already reached you by way of Europe; but of this I am not assured, and have determined to send it.

Having given you the general feature of the letter, it would be presumptuous in me to hazard any remark to one so skilled in Anthropology; and I would only suggest, that fossil remains are not confined to Minas Geraes, but are also found in the western part of this Province, and in Bahia.

Near the city of Rio de Janeiro of course nothing of the kind has been discovered, as the formation is entirely Granitic; but from the point where the calcareous rocks commence, (about ninety miles inland, near Canto Gallo,) I am informed that fossils are abundant.

I take this opportunity to express my thanks to you, personally, and to the members of the Academy generally, for the honor conferred by my election as a corresponding member, and for the kind interest they have taken in my enterprise, and

Remain, dear Sir,
Your most obd't. servt,
I. G. STRAIN.
Corresponding Member A. N. S.

To Samuel George Morton, M. D., Vice President of the Academy of Natural Sciences, Philadelphia.

Meeting for Business, February 27, 1844.

MR. PEARSALL in the Chair.

The Monthly Report of the Corresponding Secretary was read and adopted.

The Committee to whom was referred the following paper, read at the last meeting, reported in favour of publication.

On a supposed New Species of Hippopotamus.

By S. G. MORTON, M. D.

It is about six months since I received from my friend Dr. Goheen an extensive series of skulls, of mammiferous and other animals, from Western Africa. They had been obtained by him during a residence of several years at Monrovia, where he had

officiated as Colonial Physician; a situation which gave him great advantages for procuring the natural productions of that region. Among these crania were two of a Hippopotamus, of small size, from the river St. Paul's. Although nothing could be more manifest than the difference between the head of this animal and that of the common species, I have hesitated to publish it, from a fear that some one else may already have done so; for I could hardly convince myself that so remarkable a species was wholly unnoticed in the systems. Having, however, searched the latest European works on Zoology without finding any account of this interesting animal, I venture to submit the following facts in relation to it.

HIPPOPOTAMUS MINOR.

Dental Formula:

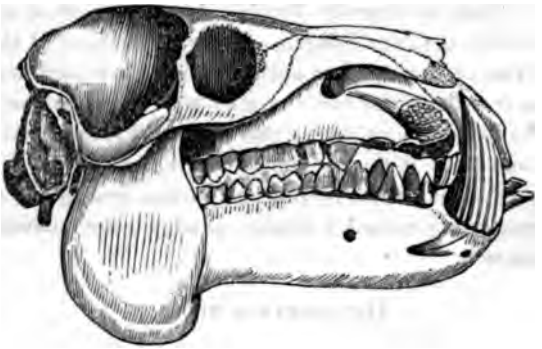
$$\text{Incisors, } \frac{4}{2} \text{ or } \frac{2-2}{1-1}; \text{ Canines, } \frac{1-1}{1-1}$$

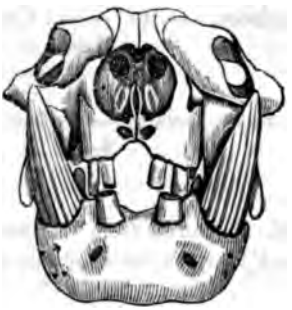
$$\text{False Molars, } \frac{4-4}{4-4}; \text{ Molars, } \frac{3-3}{3-3}$$

	Inches.
Length of the skull, measured from the anterior extremity to the notch between the condyles of the occipital bone,	12.3
Zygomatic diameter,	8.
Parietal diameter,	3.5
Distance between the orbits over the surface of the skull,	3.9
Vertical diameter of orbit,	2.
Horizontal diameter of orbit,	1.8

These measurements have been taken from a very old individual, in which the sutures are entirely obsolete, and the teeth worn almost to the level of the jaw; and the contrast in size, between this and the large or common species, (familiar to every one as the H. *amphibius*, but recently divided into two species, the H. capensis and H. Senegalensis,) will be manifest to every one. The difference, however, is not only in size, but in

all the proportions of the head, as the subjoined drawings will show:





In the H. *minor* there is a uniform *convexity* of the upper surface of the cranium, from orbit to orbit, and between the occiput and ossa nasi; while in the common species the orbits are remarkably elevated, and the intermediate surface is *concave*. The orbit is placed about midway between the occiput and snout, and the latter is consequently short: while in the large species the orbits are placed about one-third the distance between the occiput and snout. The H. *minor* has only two canines in the lower jaw; the false molars are proximate to the canines; and the base of the zygomæ is in the same plane with the upper maxilla.

The second skull of this species (which is of the same length as the other,) is that of a younger animal; for the sutures are open, and the teeth in the process of changing from the deciduous to the permanent set. The posterior molars are only partially

protruded, and rise obliquely from the jaws, like those of the Elephant and Mastodon.

Dr. Goheen, who assured me from the first that he could find no notice of this animal in the systematic works, has obligingly favoured me with the following memorandum in relation to it. "This animal abounds in the river St. Paul's, and varies in weight from four hundred to seven hundred pounds. They are slow and heavy in their motions, yet will sometimes stray two or three miles from the river, in which situation they are killed by the natives. They are extremely tenacious of life, and almost invulnerable, excepting when shot or otherwise wounded in the heart. When injured they become irritable and dangerous, but are said by the natives never to attack them when in their canoes. The negroes are very fond of the flesh, which seems to be intermediate in flavor between beef and veal."

My comparisons with the common Hippopotamus have been made on four specimens, (three of which are fully grown,) two from the vicinity of the Cape of Good Hope, and two from the Senegal river.

The Chevalier Amedeo Avogardo, of Turin, was then elected a Correspondent of the Academy.

PROCEEDINGS

OF THE

ACADEMY OF NATURAL SCIENCES

OF PHILADELPHIA.

VOL. II. MARCH AND APRIL, 1844. No. 2.

Stated Meeting, March 5, 1844.

DR. BRIDGES in the Chair.

DONATIONS TO MUSEUM.

Forty-seven species of Plants of Missouri, including several species of Cuscuta recently described by Dr. Engelmann, of St. Louis; and also several of Torrey & Gray's new species of Desmodium, Hedyotis, Ambrosia, &c. From Dr. Engelmann.

One hundred and ninety specimens of Coleopterous, Hemipterous, Lepidopterous, and other insects, from the vicinity of Newark, Delaware. Collected and presented by Dr. Thomas B. Wilson, of Newark.

Mr. T. R. Peale presented a travelling case from the Sandwich Islands, formed of sections of a gourd of large size.

Mr. Cassin stated a fact, which he considered as worthy of record: that, during the past winter, the Snow Owl (Strix nyctea, L., Nyctea candida, Sw.) had been observed in the vicinity of Philadelphia, and in the adjoining states of New Jersey and Delaware, in numbers unusually great for this latitude. At a moderate calculation, he supposed that not less than one hundred specimens had been shot and exposed for sale in the markets, and at a very trifling price. Several of them had been seen for many days successively upon the

roofs of houses, chimney tops, and other elevated places, in the city itself, during the very severe weather of January.

As this is a bird almost exclusively confined to extreme northern latitudes, its appearance here, in such large numbers, is to be solely attributed to the great severity of the season to the North.

Stated Meeting, March 12, 1844.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO LIBRARY.

Report of a Committee of the Delaware County Institute of Science, on the great rain storm and flood which occurred in that County on the 5th of August, 1843; with a Map of the County. Chester: 1843. From the Institute.

Memoirs of William Smith, L. L. D. &c.; by his nephew and pupil, John Phillips, F. R. S. &c. London: 1844. From the Author.

The Committee on Proceedings announced that the First No. of Vol. 2d of the Proceedings, with the title page and index of the first volume, (which latter is now complete,) had been published, and was now on the table.

The Chairman read a letter from Dr. Charles Pickering, dated Alexandria, Egypt, December 17, 1843, announcing his safe arrival, and communicating some information on the subject of ethnography, which, after a further examination of facts in confirmation of his present impressions, he will submit to the Academy in a more enlarged form at a future period.

On motion of the Recording Secretary, the Committee on Proceedings were authorized to have reprinted No. 2 of Vol. I., and also to have bound in boards a number of copies of said volume.

Stated Meeting, March 19, 1844.

Vice President Morton in the Chair.

DONATIONS TO MUSEUM.

Specimen of Terebratula caput serpentis, with the animal; taken 60 miles at sea, in 75 fathoms water, off the coast of Maine; also specimens of Anatifa striata and A. vitrea: and a specimen of Holothuria squamata, Mull., from Casco Bay. From Dr. J. W. Mighels, of Portland, Maine.

Sulphuret, Carbonate, and hydrated Carbonate of Copper, Kyanite, micaceous oxide of iron, and other minerals, from the Warrick Mine, Berks County, Pennsylvania. From Mr. Samuel Woodhouse.

A collection, in spirits, of reptilia, fishes, coast shells, &c.: also, a specimen of Alcedo ———, and one of Vespertilio ———; all from Africa. Presented by Dr. Day, of Liberia, through Dr. Reynell Coates.

DONATIONS TO LIBRARY.

Crania Ægyptiaca; or, Observations on Egyptian Ethnography, derived from anatomy, history, and the monuments. By Samuel George Morton, M. D. (From the Transactions of the Amer. Phil. Soc., Vol. ix.) 4to. Philadelphia: 1844. From the Author.

Catalogue of Books added to the Library of the Library Co. of Philadelphia, from 1835, to Jan., 1844. From the Directors of Library Company.

Catalogue of Skulls of Man and the inferior animals, in the collection of Samuel George Morton, M. D. Second edition. Philadelphia: 1844. From the Author.

A number of the Army and Navy Chronicle, containing certain recent proceedings of the National Institute; accompanied by a third circular from the latter Society, in relation to the intended scientific meeting to be held in Washington in April next. From Mr. Joseph R. Ingersoll.

The Chairman read a portion of a letter from Baron Humboldt, dated Berlin, Jan. 17, 1844, returning his acknowledgments for his election as a Correspondent.

Also, a paper by Dr. E. Hallowell, entitled "Descriptions of new species of African Reptiles," viz.: Euprepis Blandingii; Ixalus concolor; and Leptophis Kirtlandii; which was referred to a Committee, consisting of Dr. Holbrook of South Carolina, Mr. Cassin, and Dr. Bridges.

Meeting for Business, March 26, 1844.

VICE PRESIDENT MORTON in the Chair.

The Monthly Report of the Corresponding Secretary was read and adopted, as were also the reports of several committees.

Prof. Johnson, by permission of the Society, then read a letter from the Rev. Dr. Morris, of Baltimore, accompanying several papers intended for publication, one of which entitled as follows, "Descriptions of new species of Coleoptera of the United States, by F. E. Melsheimer, of Dover, York county, Pennsylvania," was, on motion, read and referred to the following Committee: Mr. Haldeman, Dr. McMurtrie, and Mr. Markland.

The remaining papers were ordered to be laid on the table until next meeting.

William Oland Bourne, Esq., of Brooklyn, Long Island, was then elected a Correspondent of the Academy.

Stated Meeting, April 9, 1844.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO LIBRARY.

American Journal of Science and Arts: Vol. 46, No. 2, April, 1844. From the Editors.

Letter from the Secretary of State, transmitting to the Committee of Ways and Means the letter of Albert Smith, Esq., relative to the N. E. Boundary. March 9, 1844.

Annales des Mines. Quatriéme Serie. Tome 3. Liv. 2 and 3; and Tome 4. Liv. 1. In exchange.

A paper by the Rev. D. Zeigler, of York county, Pennsylvania, and a paper by Mr. John L. Le Conte, of New York, both describing new species of North American Coleoptera, (communicated by the Entomological Society of Pennsylvania, through the Rev. Dr. Morris, of Baltimore,) were read and referred to the following Committee: Mr. Haldeman, Dr. McMurtrie, and Mr. Markland.

A paper by Mr. Haldeman, containing descriptions of some new insects, was also read, and referred to a Committee consisting of Dr. McMurtrie, Mr. Markland, and Dr. Goddard.

The Chairman read a letter from Dr. Charles Pickering, dated Cairo, Egypt, January 9, 1844, giving some further views on certain ethnographic subjects, founded on observations made since his arrival in Egypt.

Mr. Ashmead presented a letter from M. Scheepmaker, of Amsterdam, dated October, 1843, addressed to Professor J. P. Durbin, a Correspondent of the Academy, soliciting correspondence with scientific individuals, especially conchologists, in the United States, and exchanges of North American for European shells.

Stated Meeting, April 16, 1844.

Vice President Morton in the Chair.

DONATIONS TO MUSEUM.

Specimen (in skin) of Grus Canadensis? from Georgia. From J. Hamilton Couper, Esq.

The fruit, seed vessels, or capsules, of the following plants, from Cienfuegos, Cuba, were presented by Captain H. F.

Baker, through Dr. Blanding: Anona muricata, Anona ———, Hæmatoxylon campechianum, Bixa orelana, Guazuma ulmifolia, Cassia bicupularis, Laurus ———, Anacardium occidentale.

Also, from the same donor, a collection, in spirits, of reptilia, fishes, and crustacea, and the following species of shells: Buccinum leucostoma, Perna isognomon, Pecten zigzag, Tellina lacunosa, Phasianella angulata, Cerithium nigrescens, Helix auricoma, Cyclostoma ———; from Cuba.

DONATIONS TO LIBRARY.

Historiæ Naturalis de Quadripedibus libri cum æneis figuris. Johannes Johnston, M. D. concinnavit. Folio, 1657. From Mr. William Hembel.

Leonardi Plukenetii Opera; in 4 Vols. 4to. 2d edition. London: 1699. From the same.

Reports on the coal and mineral resources of India. By John McClelland. Calcutta: 1841. From Mr. S. J. Oakford, through Dr. Morton.

Mr. Phillips read a portion of a letter from Mr. Couper, of Georgia, expressing some doubt respecting the specific character of the bird presented by him this evening, and requesting the attention of the Academy to it.

The subject was referred to Messrs. Phillips, Cassin, and Draper.

Prof. Locke exhibited specimens of the plates of the projected work of Mr. Van Cleve, of Dayton, Ohio; being a translation of that portion of the writings of Dr. Goldfuss, which relates to American organic remains.

Stated Meeting, April 23, 1844.

Vice President Morton in the Chair.

DONATIONS TO LIBRARY.

An Essay on solid Meteors and Aërolites, or meteoric stones. By Peter A. Browne, L. L. D. Philadelphia: 1844. From the Author.

The Birds of Long Island. By J. P. Giraud, Jr. 8vo. New York: 1844. From the Author.

Proceedings of the American Philosophical Society. Vol. 4. No. 28. June to December, 1843. From the Society.

A letter was read from Capt. P. T. Cautley, Corresponden of the Academy, dated Serampore, October 30, 1843, an nouncing that he had forwarded for the Museum a donation of fossils obtained from the Siwalih Hills, lying at the southern foot of the Himalayas.

The Chairman read a letter from Colonel Abert, dated April 18, 1844, transmitting drawings of a species of Paludina, which he regards as new, and requesting the attention of the members to it.

Referred to a Committee, consisting of Mr. Phillips, Dr. Morton, and Mr. Conrad.

A communication was read from the Secretary of the American Philosophical Society, dated April 15, 1844, acknowledging the receipt of No. 1, Vol. 2, of the Proceedings of the Academy.

The Committee, to whom were referred, on the 26th of March and 2d of April last, papers by Dr. F. E. Melsheimer, the Rev. Mr. Zeigler, and Mr. J. L. Le Conte, describing new species of North American Coleoptera, reported in favour of publication.

Descriptions of New Species of Coleoptera of the United States.

By F. E. MELSHEIMER, of Dover, York County, Pennsylvania.*

HYDRADEPHAGA.

LEIONOTUS, Kirby.

L. *compar*. Olive-black; lateral margins of the thorax and elytra, testaceous; beneath glossy black.—12 lines long, 6 lines wide. Pennsylvania and Massachusetts.

LEIONOTUS *compar*, Harris MS.

Body oblong-oval, olive-black, very minutely and sparsely punctured: *head*, vertex, with a faint rufous spot: *clypeus* testaceous, with the anterior margin dusky, or black: *palpi* and *labrum* testaceous, the latter sometimes black: *antennæ* piceous: *thorax*, lateral margins broadly testaceous; anterior and posterior margins most frequently piceous, or testaceous; dorsal line obscure, abbreviated before and behind, bounded at each end by an impressed puncture: *elytra* with three fine striæ of punctures; lateral margins testaceous, dusky from the middle to the apex: *posterior feet* and *body beneath* glossy black, or dark reddish-brown: *pleuræ* and *epipleuræ*, *coxæ* and *femora* of the intermediate and anterior feet, testaceous.

THERMONECTUS, Eschscholtz.

1. T. *irroratus*. Testaceous; elytra irrorated with testaceous; clypeus, lateral margins of the thorax and a transverse band on the middle and sides of the elytra, testaceous; beneath dusky rufous. 6 l. long, 3¼ wide. Pennsylvania.

Dytiscus irroratus, Melsh. Catal.

Acilius ornaticollis, Aubé Spec. p. 140?

Body oblong-oval, flat, testaceous: *head*, with the base and a transverse band black, sometimes confluent; *eyes* black: *thorax* with two transverse black bands, neither of which attains the lateral margin, anterior band linear and almost united with the posterior one by an abrupt flexure of its ends, posterior band broad and emarginate in the middle, and narrow and acute at the ends; dorsal line faintly impressed: *scutel* black, glabrous: *elytra* blackish at the basal and sutural edges; densely irrorate with dark brown, clear at the lateral margins; a black, undulated and somewhat indistinct fascia behind the middle; a subsutural series of remote impressed punctures; *beneath* and *feet* dusky rufous: ♀ with an aciculated patch behind the base of each elytrum.

Though this species does not altogether correspond with Aubé's description of *ornaticollis*, it may nevertheless prove to be the same species.

2. T. *nimbatus*. Black; clypeus, lateral margins and fascia of the thorax, sides and a fascia of the elytra, testaceous; beneath pitchy dusky reddish brown.—4½ l. long, 2⅝ l. wide. Pennsylvania.

Dytiscus nimbatus, Melsh. Catal.

Body ovate, flattish, black, glossy: *head* testaceous, base, eyes, and an angulated line between the eyes, black: *palpi* testaceous: *antennæ* pitchy-rufous;

* Communicated by the Entomological Society of Pennsylvania.

thorax black, with the lateral margins and a transverse middle line, testaceous-yellow, middle line confluent with the lateral margins: *elytra* black, lateral margins and a common narrow fascia immediately behind the base testaceous, fascia not confluent with lateral margins: three rows of remote impressed punctures: *posterior feet* and *body beneath* dull reddish-brown; intermediate and anterior feet testaceous: *pleuræ* and *epipleuræ* similarly colored.

HYDATICUS, Leach.

H. *meridionalis*. Black; clypeus, lateral margins of the thorax, sides of the elytra and a fascia behind the base, rufo-testaceous; beneath black.—6 l. long, 3¼ l. wide. Georgia.

Body oblong-oval, flat, black, glossy: *head* black, with the clypeus and an obsolete spot on the vertex, rufo-testaceous: *palpi* and *antennæ* similarly colored; *thorax*, lateral margins, rufo-testaceous; anterior margin faintly dusky reddish-brown: *elytra* irrorated with testaceous towards the lateral margins, which are testaceous-yellow, and with a similarly colored fascia near the base, curving a little at the suture and attaining the lateral margin; three series of remote impressed punctures, placed on narrow, somewhat faintly defined, rufous lines: *beneath* black: *posterior feet* obscure reddish-brown; *intermediate* and *anterior feet*, rufo-testaceous: *pleuræ* and *epipleuræ* testaceous.

AGABUS, Leach.

1. A. *terminalis*. Black, opake, densely and very finely striate; labrum, palpi and antennæ testaceous.—Nearly 5 l. long, 2¾ l. wide. Inhabits Pennsylvania.

Colymbetes picipes, Kirby, in Richardsons' Faun. Bor. Amer. IV. 71. 6?

Body convex, deep black, opake, densely and very finely striate: *head* with two faint rufous spots on the vertex: *antennæ*, *labrum* and *palpi* testaceous or rufo-testaceous: *thorax* with the basal impressed line distinct in the entire width; apical impressed line finely punctured; dorsal line indistinct: *elytra* with three series of small, remote, impressed punctures, subsutural series most distinct; tip acutely rounded: *beneath* and *posterior feet* black; *anterior feet* reddish-brown, with the *tibiæ* and *tarsi* lighter.

2. A. *arctus*. Black, glossy; labrum, palpi, antennæ and feet, pitchy-rufous.—4¼ l. long, 2½ l. wide. Pennsylvania.

Body oblong-oval, convex, with the sides subparallel; deep black, tinged with bluish, shining; *head* each side, between and near the eyes, with three small indentations; epicranial spots obscure: *antennæ*, *labrum* and *palpi* pitchy-rufous; *thorax*, sides subrectilinear; posterior edge obsoletely piceous: *elytra* with the sides almost parallel to near the apex, which is acutely rounded; three series of faintly impressed punctures: slightly brassy: *venter* with the lateral margins piceous: *feet* dusky rufous.

3. A. *punctatus*. Dull testaceous, glossy; elytra with three double irregular series of punctures; pectus black.—4 l. long, 2 l. wide. Virginia.

Body oblong-oval, convex, dusky rufous, or dull testaceous, glossy; *head antennæ* and *palpi*, rufous: *eyes* glaucous, with a black central dot: *thorax* dusky on the middle; the ordinary series of punctures on the anterior and posterior margins distinct; areæ of the posterior angles, and posterior moiety of the lateral margins, with scattered punctures: *elytra* dusky on the disk; very

finely punctured; a sutural and three double irregular series of somewhat large punctures, the sutural series and the outer lateral one, confluent at tip: *venter* and *feet* dull reddish-brown: *pectus* black: *pleuræ* and *epipleuræ* testaceous.

Laccophilus, Leach.

L. *rufus*. Rufo-testaceous, or testaceous-yellow; elytra dusky with spots.—2 l. long, 1 wide. Pennsylvania.

Dytiscus rufus, M. Catal.

Body oblong-ovate, indistinctly punctured, rufo-testaceous; *eyes* black: *antennæ*, *palpi*, *feet* and *epipleuræ*, testaceous: *elytra* clouded with brownish, excepting the lateral margins, where the general color appears in a few patches; apex acutely rounded: *beneath* rufo-testaceous.

Hydroporus, Clairville.

1. H. *dichrous*. Dusky, finely punctured, slightly pubescent; head and thorax rufous; body beneath black.—Hardly 2 l. long, 1 l. wide. Pennsylvania.

Body ovate, finely and densely punctured, and slightly pubescent: *head* dull rufous, with an oblique shallow indentation each side between the eyes, which are black: *thorax* color of the head, with the middle of the anterior margin dusky; much and finely punctured, particularly the posterior margin and sides; the latter slightly rounded: *elytra* dark reddish-brown, paler towards the sides; finely and densely punctured, and slightly pubescent; apex acutely rounded: *antennæ*, *palpi*, *feet*, *pleuræ* and *epipleuræ*, rufous: *venter* and *pectus* black, distinctly punctured, the former with three or four lateral rufous spots.

Var.—Larger; head tinged with black; thorax nearly the color of the elytra.

2. H. *striato-punctatus*. Elytra black, with the tip and two undulated fasciæ yellowish-red, and with three triple series of large punctures, 1¼ l. long, ¼l. wide. Pennsylvania.

Oblong-ovate, glossy, punctured: *head* fulvous, finely and densely punctured: *antennæ* and *palpi* color of the head: *thorax* similarly colored, broadly black in the middle; strongly punctured; a round indentation on the middle of the base: *elytra* black, with the sides, apex and two undulated fasciæ, yellowish red; three triple series of somewhat large punctures, obsolete before the tip; interstices almost as wide as the punctured spaces; apex acutely rounded: *beneath* and *feet* dull reddish: *postpectus* with large and sparse punctures, and profoundly grooved in the middle.

3. H. *luridipennis*. Black; elytra dusky testaceous. ¾ l. long, 1⅛ l. wide. Pennsylvania.

Body subelliptic, finely punctured, black: *head* finely punctured, deep black: *thorax* with the anterior and posterior margins much punctured, the latter strongly depressed in its entire breadth; glossy; sides rounded, with the edges rufous; *elytra* sparsely and finely punctured; sides parallel from the base to near the tip, which is acutely rounded; dull testaceous: *beneath* black; *palpi* and *feet* dull red: *pleuræ* and *epipleuræ*, testaceous.

4. H. *limbalis*. Fuscous, with the thoracic and elytral margins testaceous, or rufous.—1⅛ l. long, ⅝ l. wide. Pennsylvania.

Ovate, finely punctured, glossy: *head* dull rufous: *antennæ* and *palpi* ru-

fous, the former with the terminal joints slightly dusky: *thorax* dusky reddish-brown, with the margins dull rufous: *elytra* distinctly punctured, confertly at the apex; fuscous, with the sides dark rufous, or testaceous; a slight longitudinal impression on the exterior basal angle; apex acutely rounded: *beneath* black, glossy: *feet*, *pleuræ* and *epipleuræ*, dull rufous.

5. H. *dubius*. Fuscous, minutely reticulate; head, lateral thoracic margins, two spots at the sides of the elytra, and feet, dull red.—2¼ l. long, 1½ l. wide. Pennsylvania.

Body oblong-ovate: *head* dull rufous, minutely and densely punctured, longitudinally and deeply indented each side between the eyes: *antennæ* and *palpi* color of the head; *thorax* dark rufous, with the middle of the anterior and posterior margins deeper colored; strongly punctured, and broadly depressed at the posterior and anterior margins: sides widest in the middle, and as much narrowed behind as before: *elytra* somewhat convex, finely and densely punctured and reticulate, pubescent; four longitudinal elevated obtuse lines, obsolete in some specimens; fuscous, with the lateral margins rufous from the humerus to near the middle; sometimes a similarly colored arcuated narrow fascia behind the base; one or two small obsolete rufous spots before the apex, which is acutely rounded: *body beneath* very convex, blackish or dark chestnut brown: *feet*, *epipleuræ* and *antepectus*, dull red.

HYGROTUS, Stephens.

H. *pustulatus*. Rufo-testaceous, with the base and two broad fasciæ of the elytra black.—1¼ l. long, 1 l. wide. Pennsylvania.

Dytiscus pustulatus, Melsh. MS.

Head, *antennæ* and *palpi* rufo-testaceous: *thorax* similarly colored, with the middle of anterior margin dusky; very finely punctate: *elytra* distinctly and profoundly punctured, glossy; rufo-testaceous, with the basal edge, and two common broad transverse bands black, of which the first is near the middle, and the second a little before the apex; sutural locality between the two bands broadly black; *beneath* and *feet* rufo-testaceous.

CYCLOUS, Eschscholtz—*Gyrinus*, Linn.

1. C. *opacus*. Black, opake; beneath dark reddish-brown.—7 l. long, 4½ l. wide. Georgia.

Head at the posterior angles greenish brassy: *antennæ* black-piceous: *thorax* and *elytra* almost destitute of gloss, the latter faintly striate towards the lateral margins, striæ obtuse, obsoletely and remotely punctured, with the interstices finely and sparsely punctate; apex (♂) very slightly sinuate: *beneath* and *feet* dark reddish-brown-piceous.

Differs from C. *vittatus*, Germar, in being more broadly oval, in being deeply black, without any brassy tinge, and in the absence of the submarginal cupreous vitta.

2. C. *labratus*. Black, glossy; labrum prominent; beneath rufous, or pale testaceous.—5¼ l. long, 3¼ l. greatest width. Pennsylvania.—Numerous.

Gyrinus longimanus, Melsh. Cat. 1086.

" *dispar*, Helwig?

" *labratus*, Harris Cat.?

Ovate, black, glossy; *head* and *labrum* obscure cupreous or brassy, the latter long and fringed with white hairs, and indistinctly punctured: *elytra* obtusely rounded at apex, with a minute tooth at the inner angle; striæ and elevated lines almost obsolete; slightly dark brassy: *beneath* and *feet* rufous, or pale testaceous.

Resembles *Americanus*, Linn., with which it might be at first view confounded, but it may be distinguished from it by its more elongated labrum, and by its less oval and more ovate form.

BRACHELYTRA, Latreille.

ALEOCHARIDÆ, Erichson.

FALAGRIA, Leach.

1. F. *erythroptera*. Black; elytra testaceous; thorax subcordate, profoundly grooved in the middle; feet rufo-testaceous.—¾ of a l. long. Pennsylvania.

Body black, very minutely punctured: *head* sparsely and minutely punctured, blackish, with a dull rufous tinge: *antennæ* nearly as long as the thorax, fuscous, with the three basal joints dull testaceous: *thorax* subcordate, deeply channeled in the middle, very minutely punctured: *elytra* testaceous, with the base shadowy; very minutely punctured: *tergum* deep black, minutely punctured: *feet* dull testaceous.

2. F. *globosa*. Black; thorax subglobose; elytra, mouth, base of the antennæ and feet dull testaceous.—1¼ l. long. Pennsylvania.

Body blackish with sparse minute piligerous punctures: *head* suborbicular, somewhat longer than the thorax, sparsely and minutely punctured, dark rufo-piceous: *antennæ* fuscous, basal joint testaceous: *thorax* subglobose, narrower than the elytra, with an obsolete dorsal groove, sparsely and minutely punctured, color of the head: *elytra* short, transverse, minutely punctured, rufo-testaceous: *abdomen* widest towards the apex, glossy, minutely punctured: *mouth* and *feet* testaceous. It is the *Aleochara globosa*, Melsh. Catal.

Of the above two species, my collection contains of each only a single specimen.

HOMALOTA, Mannerheim.

1. H. *flaveola*. Rufo-testaceous; head and fifth abdominal segment black; basal joint of the antennæ and feet pale testaceous.—1 l. long. Pennsylvania.

Pubescent: *head* narrower than the thorax, sparsely and distinctly punctured, black, with a dull rufous tinge, glossy: *antennæ*, basal joint only remaining, which is testaceous: *thorax* at its greatest width as broad as the base of the elytra, transverse; base with the posterior angle strongly rounded, anterior angles obtusely rounded, slightly deflexed; much punctured, dark testaceous with the disk darkest: *elytra* sparsely and minutely punctured, minutely transverse-rugose, dark testaceous, region of the scutel and sides darkest: *abdomen* sparsely and somewhat coarsely punctured, rufo-testaceous, with the fifth segment and posterior margin of the fourth, black: *feet* and *mouth* testaceous.

2. H. *polita*. Black, slightly pubescent: tergum polished; elytra and feet pale fuscous, the former with the suture dusky.—1 l. long. Pennsylvania.

Head narrower than the thorax, black, slightly punctured: *antennæ* as long as the thorax, dark brown, basal joints piceous: *palpi* and *thorax* not as wide as the elytra, minutely and not very closely punctured, black, glossy: *elytra* longer than the thorax, indistinctly punctured, pale brown, with the suture dusky: *tergum* deep black, polished, particularly the fifth and sixth segments: *feet* pale, somewhat piceous: *body beneath* black.

3. H. *modesta*. Black, pubescent; basal joints of the antennæ, elytra and feet testaceous.—1 l. long. Pennsylvania.

Body fusiform, black, pubescent: *head* narrower than the thorax, suborbicular, minutely punctured, black, glossy: *antennæ* larger than the thorax, somewhat slender, brown, three basal joints and tip of terminal one testaceous: *thorax* narrower than the elytra, transverse, glossy, confertly and minutely punctured, obsoletely indented on the middle of the base: *elytra* longer than the thorax, slightly indented at the scutel; minutely punctured, rufo-testaceous, with the suture dusky: *tergum* somewhat rugulose and punctured, with the fifth and sixth segments polished and coarsely punctured; anal segment and posterior margin of the sixth segment, obsoletely rufous or piceous: *body beneath* distinctly punctured, black, with the anterior abdominal segments piceous.

OLIGOTA, Mannerheim.

O. *pedicularis*. Linear, piceous; feet, palpi and base of the antennæ testaceous.—3-5 l. long. Pennsylvania.

Aleochara pedicularis, Melsh. Catal.

Head narrower than the thorax, slightly indented on the front, subpubescent, minutely and not densely punctured, blackish with a rufous tinge: *antennæ* longer than the thorax, incrassated towards the tip, brownish, with the basal joint testaceous: *thorax* transverse, narrower than the elytra, angles rounded; minutely punctured, reddish-brown-piceous: *elytra* somewhat longer than the thorax, indented about the scutel, minutely punctured, dark-reddish-brown, with the apical margins piceous; like the thorax, slightly pubescent: abdomen black, pubescent, punctured; and segment obsoletely rufous: *feet* testaceous.

GYROPHÆNA, Mannerheim.

1. G. *rufa*. Testaceous: eyes, exterior angles of the elytra, and a spot on the dorsum black.—½ l. long. Pennsylvania.

Aleochara rufa, Melsh. Catal.

Testaceous, glossy, minutely and obsoletely punctate: *head* nearly as long and wide as the thorax: *antennæ?*: *eyes* black: *thorax* not much more than half the breadth of the elytra, transverse, slightly marginate, apex and base truncate, angles obtusely rounded: *elytra* longer than the thorax, and paler than the same, with the apex and exterior angles dusky or blackish: *abdomen* more obviously punctured than the head and thorax; a dusky transverse spot on the fifth segment, terminal segment rounded: *feet* color of the body.

2. G. *flavicornis*. Oval, depressed; antennæ, palpi, elytra, feet and tergum, testaceous; head, thorax, exterior posterior angles of the elytra and a fascia on the tergum, black.—1 l. long. Pennsylvania.

Head slightly narrower than the thorax, faintly longitudinally indented each side between the antennæ, minutely and sparsely punctured, blackish-piceous: *antennæ* somewhat shorter than the thorax; 4-10 joints of equal thickness; testaceous: *thorax* narrower than the elytra, subtransverse-oval, distinctly marginate, minutely, though more densely punctured than the head, colour of the head, with the margins narrowly but distinctly testaceous: *elytra* nearly double as wide as long, very minutely and sparsely punctured, testaceous or rufo-testaceous, with the outer posterior angles, black, sometimes obsoletely; *tergum* flat, pubescent, very minutely, almost invisibly punctured, testaceous, with the fifth and part of the sixth segment transversely black: *feet* testaceous: *postpectus* brown.

Var. Tergum black.

Resembles much G. *fasciata*, Say, but that species is more distinctly punctured, and has its thorax always testaceous.

3. G. *lateralis*. Piceous; head, sides of the elytra, tergum and antennæ, black; feet testaceous. Nearly 1 l. long. Pennsylvania.

Head narrower than the thorax, minutely and somewhat densely punctured, deep black, glossy, with the mouth piceous: *antennæ* hardly surpassing the base of the thorax; joints from the fourth to the tenth subequal, apical joint somewhat thicker than the preceding: blackish or dark brown, with the three basal joints testaceous; *thorax* narrower than the elytra, transverse, base and sides rounded; apex truncate; angles rounded, anterior ones slightly deflexed; minutely and densely punctured, reddish-brown, or brown, with the margins piceous: *elytra* nearly twice as wide as long, punctured as the thorax, pale brown-piceous, with the sides and region of the scutel dusky, darkest near the outer posterior angles: *tergum* pitchy-brown, or reddish-brown, transversely black before the apex: *feet* testaceous.

TACHYPORIDÆ, MacLeay.

Tachyporus, Gravenhorst.

T. *punctulatus*. Piceous, punctured; mouth and antennæ testaceous; thorax, elytra and feet, rufo-testaceous.—1 l. long. Pennsylvania.

Head black, glossy; *mouth* testaceous: *antennæ* longer than the thorax, with the last joint largest; testaceous: *thorax* in the middle slightly wider than the base of the elytra, minutely and confertly punctured, reddish brown, shining: *elytra* almost double as wide as long, minutely and densely punctured, pitchy-reddish-brown, shining: *abdomen* pitchy-brown, much and finely punctured, with the apex testaceous: *feet* similarly colored: *antepectus* color of the thorax.

Tachinus, Gravenhorst.

1. T. *discoideus*. Rufo-testaceous, impunctured; anterior middle of the thorax, and region of the scutel dusky; head black.—2 l. long. Pennsylvania.

Form of *fumipennis*, Say, but a little smaller. *Head* narrower than the apex of the thorax, impunctured, deep black, shining: *mouth* and *palpi* testaceous: *antennæ* longer than the thorax, filiform; third joint nearly twice as long as the second; 4-10 joints subequal, terminal joint ovate; fuscous, with the two basal joints testaceous: *thorax* slightly wider than the base of the elytra, trans-

verse, base truncate, sides rounded and slightly marginate, angles obtusely rounded, anterior ones but slightly deflexed; impunctured, rufo-testaceous, dusky before the middle; shining: *elytra* longer than wide, impunctured, rufo-testaceous, with the disk and region of the scutel dusky; outer posterior angles rounded, with the lateral edges slightly marginate: *abdomen* brown with the posterior margins of the segments rufo-testaceous, piceous; very minutely punctured on the anterior margins; sides of each segment with one or two long black hairs: *feet* and *postpectus* rufo-testaceous; *antepectus* testaceous.

2. T. *limbatus*. Pitchy-brown, impunctured; thorax, lateral and apical margins of the elytra, and feet testaceous: head black.—3 l. long. Pennsylvania.

About the size of *memnonius*, Grav. *Head* small, black, highly polished; *mouth* piceous: *palpi* pitchy-rufo-testaceous: *antennæ* subfiliform, joints subcylindric, third joint much longer than the second, second and fourth equal, terminal ovate; brown in the middle, four basal joints and two terminal ones, testaceous: *thorax* a little wider than the base of the elytra, transverse, sides rounded, base rectilinear, angles obtusely rounded; testaceous, tinged with rufous on the disk; highly polished: *elytra* quadrate, longer than the postpectus, minutely and irregularly rugose, brownish, with the lateral and apical margins testaceous; glossy: *tergum* punctured, punctures not crowded, dark reddish-brown, with the posterior margins of the segments somewhat piceous; *antepectus* and throat testaceous: *venter* and *postpectus* reddish-brown, the former lighter colored at apex.

BOLETOBIUS, Leach.

1. B. *dimidiatus*. Black, shining; base of the elytra and feet rufous. Erichson. Er. St. 1. 276. 13.

Var.—Feet and only the exterior basal angles rufous. *Tachyporus humeralis*, Melsh. Catal. 1325.

2. B. *venustus*. Testaceous; head, three angular spots on the elytra and postpectus black; tergum rufous.—1½ l. long. Pennsylvania.

Trachinus trimaculatus, Say, Trans. Amer. Phil. Soc. iv. p. 464. 3.

Head short, black, polished; *mouth* testaceous: *antennæ* hardly longer than the thorax, brown, with four basal joints testaceous: *thorax* slightly narrower than the base of the elytra, testaceous, glossy: *elytra* pale testaceous; region of the scutel with a long acute triangular black spot; exterior posterior angles, each with a similarly colored spot; dorsal series of punctures slightly impressed, *abdomen* sparsely punctured, rufous, with the posterior margins of the segments lighter colored; apex testaceous; *epipleuræ* and *postpectus* black: *antepectus* and *feet* testaceous.

I have changed the name *trimaculatus*, as it had been previously applied to a European species.

3. B. *binotatus*. Rufo-testaceous; head, a round spot at the exterior posterior angle of each elytrum, suture and epipleura black.—1¼—1½ l. long. Pennsylvania.

Tachyporus binotatus, Melsh. MS.

Doubtless only a variety of the preceding.

STAPHYLINIDÆ, Leach.

XANTHOLINUS, Dahlman.

1. X. *palliatus*. Black-piceous; elytra and feet pale testaceous.—2¼ l. long. Pennsylvania.

Staphylinus palliatus, Melsh. Catal. 1305.

Black, shining: *head* oblong, as long as the thorax, and a little wider; base rounded, with the sides rectilinear; impressed lines between the eyes profound; sparsely and profoundly punctured, with the medial space impunctured; black, glossy: *palpi* rufous: *antennæ*, second joint somewhat larger than the third; joints 4-10 subequal, transverse; brown, with the two basal joints rufo-testaceous: *thorax* not as wide as the elytra, attenuated towards the base, where it is regularly rounded; apex obtusely rounded; black, highly polished; dorsal punctures seven or eight, lateral series about six or seven punctured; punctures very minute: *scutel* dark, sparsely punctured; *elytra* about the length of the thorax, pale testaceous, sparsely punctured, punctures placed in irregular series: *abdomen* sparsely punctured, black, with the segments posteriorly obsoletely piceous: *parapleuræ* and *feet* pale testaceous: *pectus* black.

2. X. *obsidianus*. Black, glossy; dorsal series of punctures five; feet dark reddish-brown.—3¼ l. long. Pennnsylvania.

Antennæ a little longer than the head, second and third joints almost of equal length, joints 5–10 subequal, transverse; fuscous, with three basal joints black-piceous: *head* oblong, slightly attenuated anteriorly: sides subrectilinear; posterior angles rounded; black, shining, with numerous well impressed punctures; middle space impunctured; impressed lines between the eyes profound; *mouth* and *palpi* dark rufo-piceous: *thorax* not as wide as the head, or elytra, slightly contracted behind; angles rounded: dorsal punctures five, lateral series five punctured; an irregular large puncture on each of the anterior angles; black, very shining: *scutel* black, with about four profound punctures: *elytra* longer than the thorax, sparsely and irregularly punctured: black, with a reddish-brown tinge, glossy: *abdomen* minutely punctured, black, glossy, with the posterior margins of the three terminal segments distinctly rufo-testaceous: *femora* and *tibiæ* dark reddish-brown: *tarsi* paler: *pectus* black: *coxæ* black-piceous.

3. X. *sanguinolentus*. Black; thorax, elytra and feet rufo-testaceous.—3¼ l. long. Pennsylvania.

Staphylinus sanguinolentus, Melsh. Catal. 1310.

Elongate, slender, subcylindric. *Antennæ* not much longer than the head, second joint hardly longer than the third: joints 5—10 subequal, transverse; fuscous, with two basal joints rufous, and tip of apical joint testaceous: *head* oblong, a little wider than the thorax; sides rectilinear, scarcely narrowed at apex; black, glossy, sparsely punctured, with a medial space impunctured; lines between the eyes deeply impressed; posterior angles obtusely rounded: *thorax* narrower at base than at apex; rufous glossy, with about four or five very slightly impressed, almost invisible, dorsal punctures; lateral series with about three or four very obsolete punctures; angles rounded, anterior ones, obtusely: *elytra* scarcely longer than the thorax, obsoletely punctured, rufous, paler than the thorax: *abdomen* elongated, very minutely punctured, black, with the mar-

gins of the segments posteriorly testaceous, two last segments entirely testaceous: *feet* rufo-testaceous.

STAPHYLINUS, Linn., Erich.

S. *violaceus*. Black: somewhat glossy; head and thorax subcyaneous; elytra violaceous; abdomen above anteriorly griseous pubescent. Gravenhorst. Grav. Col. Micropt. p. 162. Erichs. Gen. et Spec. St. p. 392. 83.

Var. b. Head and thorax brassy; elytra cupreous; abdomen steel-blue. *Staphylinus cupripennis*, Melsh. MS.

BELONUCHUS, Nordman.

B. *pallipes*. Black; elytra and five anterior abdominal segments rufo-testaceous.—3½ l. long. Pennsylvania.

Staphylinus pallipes, Melsh. Catal. 1301.

Antennæ reach to the middle of the thorax, joints 5—10 equal, terminal joint obliquely truncate at the tip; fuscous, with three basal joints dark piceous, and terminal joint ferruginous: *head* subquadrate, posteriorly a little contracted, broader than the thorax, black, polished; a broad longitudinal impression between the eyes, and each side between it and the eyes two deeply impressed punctures, placed transversely; four or five other punctures above and behind the eyes: *labrum* rufo-piceous: *palpi* rufous; *mandibles* prominent, dark piceous at the base, and rufous and slightly piceous at apex: *thorax* black and highly polished, narrower than the elytra; sides rectilinear, rounded at base, and truncate at apex, with the anterior angles almost square; dorsal punctures five, lateral punctures about six, all deeply impressed: *scutel* piceous, punctured: *elytra* hardly longer than the thorax, rufo-testaceous, with minute prostrate hair; minutely and rugosely punctured: *wings* dusky: *abdomen* rufous, two terminal segments black; punctured, pubescent: *feet* and *postpectus* color of the elytra: *femora* beneath ciliate: *tibiæ* and *tarsi* spinous: *antepectus* black.

This species, if not the same, must be closely allied to *B. formosus* of Gravenhorst and Erichson.

PHILONTHUS, Leach.

1. P. *harrisii*. Black, polished: elytra fuscous-brassy; thorax, sides subsinuate; four dorsal punctures—5 l. long. Pennsylvania.

Staphylinus picipes, Harris MS.

Size and form of St. *splendens*, Fab. *Antennæ*, three basal joints only remaining which are piceous: second and third joints subequal: *head* (♂) suborbicular, wider than the thorax, black, polished; four slightly impressed, and transversely placed punctures between the eyes, and a few dispersed ones behind these organs: *thorax* slightly narrower than the elytra, and hardly contracted behind; base together with the posterior angles rounded; sides subsinuate; apex truncate; anterior angles deflexed; black, very shining; four dorsal punctures, the fourth is minute and placed on the anterior edge; lateral punctures about three or four: *scutel*, large, black, minutely and confertly punctured: *elytra* transverse, obscure brassy, pubescent, confertly punctured: *abdomen* black, with a steel-blue reflection, confertly punctured, pubescent: *pectus* and *feet* black.

This species is perhaps the P. *æneus* of some authors, which is stated to occur frequently in North America. I have seen only one specimen of the above species. The name *picipes* is pre-occupied in this genus.

2. P. *lætulus*. Black, polished; thorax, four anterior abdominal segments, and femora rufous.—4 l. long. Pennsylvania.

Staphylinus lætulus, Say, Trans. Amer. Phil. Soc. IV. 449. 4.

Antennæ shorter than the thorax, slightly incrassated towards the tip; third joint one fourth longer than the second; brown with three basal joints pitchy black: *head* wider than the thorax, suborbiculate, widest across the eyes, black, glossy, with four transversely placed punctures between the eyes, two on each side and deeply impressed, behind these and near to each eye, four or five smaller ones: *thorax* not as wide as the elytra, slightly contracted behind, strongly rounded at base, and truncate at apex, sides subrectilinear, with the anterior angles slightly deflexed; dorsal punctures, with a displaced apical one, four; lateral punctures two or three; rufo-sanguineous, highly polished; *scutel* minutely and rugosely punctured, dark rufous: *elytra* longer than the thorax, black, with a tinge of blue, punctured, and clothed with minute hairs: *abdomen* rufous, three terminal segments black, with a steel-blue reflection; punctured: *femora* and *antepectus* rufo-testaceous; *knees*, *tibiæ* and *tarsi* black or piceous.

Staphylinus blandus, Grav., which Dr. Say conjectured to be identical with *lætulus*, though closely allied to it, is certainly distinct from the same. The name which Dr. Say proposes for the above species is adopted.

3. P. *pulchellus*. Rufo-testaceous; head, elytra and three terminal segments of the abdomen, black; thorax with four dorsal punctures in each series.

Staphylinus pulchellus, Melsh. Catal. 1314.

Head suboval, not much narrower than the thorax, with the sides almost parallel; deep black and highly polished; four transversely posted punctures between the eyes, of which the two intermediate ones are almost obsolete; punctures above and behind the eyes, sparse and well impressed: *antennæ* not as long as the thorax, with the second and third joints subequal; joints 5—10, equal; reddish-brown, apical joint pale ferruginous, two basal joints testaceous, *thorax* somewhat narrower than the elytra; base, including the posterior angles, obtusely rounded; sides almost straight; apex truncate, with the anterior angles obtusely rounded and deflexed; dorsal punctures eight, four in each series; lateral punctures four or five; reddish testaceous: *scutel* dark-rufous, punctured: *elytra* brownish-black, longer than the thorax, rugosely punctured, pubescent: *abdomen* rufous, with the three terminal segments black, and with a steel-blue reflection; minutely and densely punctured, pubescent: *postpectus* black: *feet* pale testaceous; *tibiæ* and *tarsi* spinose.

Var. b. Anterior third of the thorax black or brownish.—*Staphylinus thoracicus*, Melsh. Catal. 1300.

4. P. *nanus*. Black; basal joints of the antennæ, palpi and feet, dusky testaceous; elytra fuscous; dorsal punctures three—1 l. long. Pennsylvania.

Antennæ almost or quite as long as the thorax; second and third joints subequal; joints 4—10 equal, apical joints obliquely emarginate at tip; fuscous,

two basal joints testaceous: *head* suborbiculate, narrower than the thorax, deep black and very shining; four transversely placed punctures between the eyes, the other ordinary punctures almost obsolete; *palpi* dusky testaceous: *thorax* some narrower than the elytra, slightly contracted before, base with the posterior angles rounded, sides subparallel, apex truncate, with the anterior angles rounded and deflexed; deep black and highly polished and somewhat piceous; six dorsal punctures, or three in each row; lateral punctures few; *scutel* piceous, minutely punctured: *elytra* longer than the thorax, brown, paler toward the apex; densely and transversely rugosely punctured, pubescent: *wings* hyaline: *abdomen* black, minutely punctured, pubescent: *feet* testaceous.

Var. b. Head deep black; thorax pale reddish-brown-piceous; elytra pale brown; abdomen similarly colored, with the posterior margins of the ventral segments rufous.—*Staphylinus palleolus*, Melsh. MS.

5. P. *brevis*. Short, black; feet testaceous; five dorsal punctures.—2¼ l. long. Pennsylvania.

Staphylinus dimidiatus, Say, Trans. Amer. Phil. Soc. IV. p. 450. 6.

———— *brevis*, Melsh, MS.

Wide for its length. *Antennæ* scarcely longer than the thorax; third joint very slightly longer than the second; joints 4—10 equal in thickness, terminal obliquely emarginate at tip; fuscous, two basal joints rufo-testaceous, terminal joint slightly ferruginous: *head* orbiculate, slightly narrower than the thorax, black, glossy; a few punctures above and behind, and the ordinary ones between the eyes: *mouth* dusky testaceous: *thorax* somewhat narrower than the elytra: base with the posterior angles obtusely rounded; sides parallel; apex truncate, with anterior angles rounded and hardly deflexed; dark-reddish-brown-piceous, glossy, ten dorsal punctures or five in each series; lateral punctures about four or five: *scutel* pitchy-black, punctured: *elytra* slightly longer than the thorax, fuscous, finely and densely punctured, and almost imperceptibly pubescent; *wings* dusky white: *abdomen* minutely and confertly punctured, and densely pubescent; posterior margins of ventral segments broadly rufous: *feet* rufo-testaceous: *postpectus* color of the elytra.

If Gravenhorst did not state that the elytra of his *anthrax* were destitute of pile I should not hesitate to consider the above species to be the same. The name *dimidiatus* is preoccupied in this genus.

6. P. *cinctutus*. Elytra, basal joint of the antennæ and feet, pale testaceous; thorax and abdomen reddish-brown, the former with five dorsal punctures.—2 l. long. Pennsylvania.

Staphylinus cinctutus, Melsh. Catal. 1306.

Head orbiculate, slightly narrower than the thorax, black, glossy, with the ordinary punctures between and behind the eyes: *antennæ* fuscous, two basal joints testaceous: *palpi* and *mouth* dusky testaceous: *thorax* almost as wide as the base of the elytra, slightly narrowed and truncated before; sides subrectilinear; base with the posterior angles obtusely rounded; anterior angles slightly deflexed; dark reddish-brown, glossy; dorsal punctures, in the present specimen, five punctures in the right series, and four in the left: lateral punctures about five: *scutel* color of the thorax, punctured: *elytra* pale testaceous, hardly longer than the thorax, very minutely and not densely punctured; pu-

bescent: *abdomen* with the sides nearly parallel; brown, with the posterior margins of the segments dull rufous; minutely punctured, pubescent: *feet* testaceous: *pectus* reddish-brown: *coxæ* testaceous.

7. P. *ruficornis*. Reddish-brown; antennæ, palpi and feet rufo-testaceous; thorax with five dorsal punctures.—2½ l. long. Pennsylvania.

Antennæ half as long again as the head; second joint a little longer than the third; joints 4—10, equal; rufous, two basal joints, mouth and palpi, paler: *head* subquadrate, posteriorly rounded; sides subrectilinear; very slightly narrower than the thorax, black, shining, with the ordinary punctures small, but well impressed, the two intermediate ones of the four, between the eyes, very remote from each other: *thorax* dark rufo-piceous, slightly narrower than the elytra, almost as wide as long, not contracted anteriorly; base with the posterior angles rounded; sides rectilinear; apex truncate, with the anterior angles rounded, and slightly deflexed; ten dorsal punctures, five in each row, the first and second remote from each other: *scutel* coarsely punctured: *elytra* nearly as long as the thorax, brown, with the margins obsoletely rufous or testaceous; punctured and rugulose, slightly pubescent: *abdomen* obscure fuscous, minutely and densely punctured, pubescent; posterior margins of the ventral segments dull rufous: *feet* rufo-testaceous: *postpectus* black: tibiæ spinulose.

8. P. *niger*. Deep black; head suborbiculate; thorax with five dorsal punctures.—3 l. long. Pennsylvania.

Black, somewhat piceous: *antennæ* hardly as long as the thorax; second and third joints subequal; joints 4—10, equal in thickness; black, with two basal joints piceous: *head* suborbiculate, slightly contracted behind, almost as wide as the thorax, polished; the ordinary punctures between, above and behind the eyes distinct: *palpi* piceous; *thorax* some narrower than the elytra; base, including the posterior angles, rounded; sides parallel; apex truncate, anterior angles rounded; shining with ten dorsal punctures, five in each series, the apical one remote from the others and somewhat out of range; lateral punctures about four or five; punctures not deeply impressed: *elytra* wider than long, and hardly longer than the thorax, somewhat coarsely and rugosely punctured, slightly pubescent: *abdomen* minutely and densely punctured, slightly pubescent: posterior margin of the penultimate ventral segment obscure rufous: *feet* black or dark brown, with the tarsi paler; *tibiæ* spinose: *tarsi* simple, slender.

9. P. *fusiformis*. Fusiform, black; two basal joints of the antennæ, elytra, and feet rufous; thorax with six dorsal punctures.—3 l. long. Pennsylvania.—Very abundant.

Head narrower than the thorax, suborbicular, black, shining, with the ordinary punctures small: *antennæ* fuscous, third joint slightly longer than the second, first and second joints rufous, third obsoletely rufo-piceous; *palpi* rufo-testaceous: *thorax* a little narrower than the elytra, subquadrate; base with the posterior angles obtusely rounded; sides parallel; apex truncated, with the anterior angles rounded, and scarcely deflexed; black, shining, with twelve dorsal punctures, six in each series; lateral punctures five or six; punctures small: *elytra* quadrate, longer than the thorax, rufous, finely rugulose and punctured, slightly pubescent: *abdomen* elongated, gradually narrowed to the

tip; black or very dark brown, with the posterior edges of the segments obsoletely rufous; densely and finely punctured; pubescent: *feet* rufo-testaceous.

OXYPORIDÆ, Erichson.

QUEDIUS, Leach.

1. Q. *bardus*. Black; thorax pitchy dark reddish-brown; base of the antennæ, palpi and feet, dull rufous.—2¾ l. long. Pennsylvania.

Antennæ almost half as long again as the head, dark ferruginous; third one fourth longer than the second; two basal joints rufous: *head* suborbiculate, narrower than the thorax, black and highly polished; two impressed punctures behind, and one at the inner margin of each eye: *palpi* dull rufous; *thorax* as wide as the base of the elytra, slightly contracted before; convex, with the base and sides rounded; apex truncate, with the anterior angles square and deflexed; dark reddish-brown piceous, shining; six small dorsal punctures, three in each row, the third of which is placed on the anterior margin, and is somewhat remote from the others, and also a little aside of the row; lateral punctures about four, the nearest one to the dorsal punctures is placed triangularly with the two hindermost ones: *scutel* piceous, impunctured; *elytra* black-piceous, with sparse irregular punctures; a distinct sutural stria; glabrous: *abdomen* brownish-black, finely punctured; pubescent; *feet* dark rufous; anterior tarsi moderately dilated.

2. Q. *terminatus*. Black; terminal abdominal segments rufous; feet piceous.—3½ l. long. Pennsylvania.

Staphylinus hæmorrhoidalis, Melsh. Catal. 1302.

Head subovate, not as wide as the thorax, black and very shining; four large punctures, one on the inner margin and another behind each eye: *thorax* wider than long, and wider than the elytra, slightly contracted before: base with the posterior angles and sides regularly rounded; apex truncate, with the anterior angles almost square, deflexed; black, very shining; three small equidistant dorsal punctures in each series, posted before the middle; lateral punctures two or three; *scutel* black, opake, impunctured: *elytra* distinctly and sparsely punctured, and tranversely rugose; black, very finely pubescent: *abdomen* black, with a steel-blue reflection, two terminal segments rufous, punctured and finely pubescent: *feet* piceous, with a rufous tinge; *tarsi* almost rufous, anterior pair strongly dilated: *postpectus* sparsely and profoundly punctured.

OXYPORUS, Fabricius.

1. O. *dimidiatus*. Testaceous, head, thorax, exterior angles of the elytra, and pectus, black.—3¼ l. long. Pennsylvania.

Antennæ short, and as in *vittatus*: *head* and *thorax* as in *vittatus*: *elytra* testaceous, with only the posterior outer angles black: *abdomen* rufous, with a blackish or brown spot on each side of the fifth and sixth segments beneath: *feet* testaceous; *pectus* black.

Resembles very much one of the varieties of *vittatus*, but it is destitute of the black suture of the elytra, which is a constant character in all the varieties of that species.

2. O. *brevis*. Testaceous; eyes and exterior posterior angles of the elytra, black.—3¼ l. long. New York.

Wide for its length, and its abdomen comparatively shorter than in any of the known native species. *Antennæ* not attaining the apex of the thorax, pale brownish, with three basal joints, and palpi testaceous: *head* testaceous, with a rufous tinge, and with its sides obsoletely brownish; front immaculate; glossy; *mandibles* rufo-testaceous, blackish towards the tips: *thorax* color of the head, with the sides and basal edge obsoletely brown, and obsoletely dusky on the middle of the anterior margin; *elytra* paler than the thorax, with the apical exterior angles blackish; sculpture as in *lateralis*: abdomen rufo-testaceous, faintly maculate with brownish, three spots on each segment: glossy: *venter*, *feet* and *postpectus*, pale testaceous.

This species bears some resemblance to *lateralis*, Grav., and did not the outlines of its body differ much from that species, it might be conjectured to be a variety of it. The present specimen is a ♀ and the only one in our collection.

O. *fasciatus*, Melsh. Catal. 1320. Testaceous; sides and front of the head, anterior and posterior margins of the thorax, suture and exterior apical angles of the elytra, parapleuræ, antepectus, and fifth and sixth abdominal segments, black.—Variety of O. *vittatus*, Grav.

PÆDERIDÆ, Erichson.

Lathrobium, Gravenhorst.

L. *longiusculum*, Grav. This species varies in its size, but we have never met with a specimen of 6 lines long, as some entomologists state it to be. The usual length is a little less or more than three lines.

Stilicus, Latr.—*Rugilus*, Leach.

S. *angularis*, Erichson, differs from *dentatus*, Say, chiefly in the thorax, which is almost glabrous, whilst that of *dentatus* is distinctly longitudinally rugulose.

S. *tristis*. Black; thorax finely carinated; antennæ and feet rugous; posterior margin of the elytra testaceous.—2¼ l. long. Pennsylvania.

Form of *dentatus*, Say, but considerably larger. *Antennæ* rufous or rufo-testaceous: *head* much wider than the thorax, orbiculate, densely and minutely longitudinally rugose, black, opake: *mouth* and its organs piceous: *labrum* wide, dilated at the sides: *thorax* much narrower than the elytra, contracted before and behind; convex, finely and confertly rugose; raised dorsal line fine, glabrous; brownish-black, opake: *elytra* scarcely longer than the thorax, pitchy-brown, with the apical margin dull testaceous; punctured and somewhat inequal: *abdomen* black, with the posterior margin of the sixth segment beneath, and very obsoletely above, rufous, and like the head and trunk, minutely pubescent: *feet* rufous: *pectus*, and head beneath, black; minutely and somewhat closely punctured.

STENIDÆ, Erich.

Stenus, Latreille.

S. *erythropus*. Black; palpi whitish; feet rufous; abdomen marginate.—2 l. long. Pennsylvania.

Læstris fuscipes, Melsh. Catal. 1345.

Head wider than the thorax; a wide and shallow excavation between the eyes, with an obsolete longitudinal carina in the middle; black, coarsely punctured: *antennæ? palpi* whitish: *thorax* much narrower than the elytra, more contracted behind than before, with the sides rounded; more strongly punctured than the head; an obsolete, impressed dorsal line, black: *elytra* black, punctured as the thorax: *abdomen* deep black, punctured, and narrowly marginated: *feet* rufous, with the tip of the femora and base of the tibiæ brownish.

Differs from *geniculatus*, Say, in being smaller and less robust; in being less profoundly and coarsely punctured, in having the thorax channelled in the middle, and chiefly in having the sides of the abdomen marginated. From *femoratus*, Say, which it somewhat resembles, it differs, aside of other characters, in being much larger.

OXYTELIDÆ, Leach, Er.

OXYTELUS, Grav.

1. O. *basalis*. Black; base of the antennæ and feet rufo-testaceous; margin of the thorax crenulate.—2¼ l. long. Pennsylvania.

Size, form and sculpture of *rugosus*, Fab. *Antennæ* much longer than the head; third joint a little longer than the second; fuscous, four first joints dark rufo-testaceous: *head* as wide as the thorax; widest at base; black, slightly piceous, profoundly but not densely punctured, and with numerous longitudinal fine wrinkles, more numerous at the sides than on the middle: *palpi* dark rufo-piceous: *mandibles* pitchy-black: *thorax* almost orbicular, as wide as the elytra, somewhat densely and profoundly punctured, and finely wrinkled; dorsum tri-sulcate, nearly in the form like the letter M; lateral margins depressed, with the edges obsoletely and finely crenate; black, somewhat piceous: *elytra* a little longer than the thorax, black with a rufo-piceous tinge, particularly towards the base; profoundly punctured, and longitudinally finely wrinkled; *abdomen* black, faintly rufous at apex; indistinctly punctured: *feet* rufo-testaceous.

The European analogue of this species is the O. *rugosus*, Fab., from which it does not essentially differ.

2. O. *pygmæus*. Black; elytra dark ferruginous; feet pale testaceous.—¼ l. long. Pennsylvania.

Antennæ a little longer than the head, incrassated towards the tip, brown, with the base piceous: *head* (♀) slightly narrower than the thorax, minutely longitudinally wrinkled each side: *palpi* dull testaceous: *thorax* slightly narrower than the elytra, with the base and sides rounded, and apex truncate; faintly tri-sulcate, and minutely longitudinally wrinkled; black, opake: *elytra* dull ferruginous, almost black, indistinctly longitudinally wrinkled: *abdomen*, black, shining: *feet* pale testaceous.

3. O. *parvulus*. Black; elytra dark fuscous; base of the antennæ piceous.—¼ l. long. Pennsylvania.

Antennæ a little longer than the head, incrassated towards the tip, fuscous, with the base piceous: *head* a little narrower than the thorax, longitudinally impressed each side, and longitudinally, and almost invisibly wrinkled; vertex, as is usual, grooved: *thorax* a little narrower than the elytra, slightly contracted behind; base obtusely rounded; sides slightly rounded, with the apex

truncate; almost invisibly longitudinally wrinkled; dorsum tri-sulcate, intermediate groove entire, with the lateral ones curved, and abbreviated before the middle; like the head black, opake; *scutel* piceous: *elytra* dark fuscous or blackish, minutely longitudinally wrinkled: *abdomen* deep black, glossy: *feet* testaceous.

This species, or the preceding one, may prove to be the O. *exiguus* Erichson.

4. O. *mœrens*. Black; base of the antennæ, palpi and feet, testaceous; elytra dark reddish-brown-piceous.—1½—2 l. long. Pennsylvania.

Elongate. *Antennæ* longish: second and third joints subequal in length, joints 5—10 equal in thickness; fuscous, with three basal joints, dull testaceous; *head* smaller than the thorax, pitchy-black, minutely and longitudinally rugose, and, as is usual, profoundly impressed between the eyes and grooved on the vertex: *mouth* and *palpi* dull testaceous: *thorax* contracted behind, with the base and posterior angles obtusely rounded; sides subrectilinear from before the middle, anteriorly strongly arcuated; apex truncate, with the anterior angles slightly rounded; dorsum tri-sulcate, intermediate groove entire, well impressed, with the lateral grooves very slightly arcuated, well impressed; pitchy-black, and minutely and longitudinally wrinkled; *elytra* longer than the thorax, and wider than long, finely and longitudinally wrinkled; dusky reddish-brown, with the sides and apical edge blackish: *abdomen* deep black, glossy: feet testaceous.

This species presents many traits of resemblance with O. *Pennsylvanicus*, Erichson, but in that species the dorsal grooves are almost obsolete or effaced, whereas in *mœrens* they are very profound and obvious.

PIESTIDÆ, Erich.

PROGNATHA, Latr.—*Siagonum*, Kirby.

P. *americana*. Rufo-testaceous; thorax with four faintly impressed punctures, two on each side of the middle.—2½ l. long. Inhabits Pennsylvania.

Depressed, rufo-testaceous. *Antennæ* more than half the length of the body, rufo-testaceous; first joint longer and thicker than any of the other joints, subcylindrical, and truncate at tip; second and third joints obconic, the former one-third shorter than the latter; remaining joints cylindric; two first joints glabrous; *head* larger than the thorax, with numerous and very minute punctures; front excaved; vertex depressed; each side between the antennæ with a short incurved, acute horn, which converge at their tips; glossy: *mandibles* exserted, falcate, mutic, acute, and black at tip: *thorax* at apex wider than the elytra, contracted posteriorly, with the sides slightly rounded, and finely marginated; base truncate, with the posterior angles almost square; apex truncate, with the anterior angles rounded; punctured at the head; four small, faintly impressed punctures, two on each side of the middle, placed quadrangularly; a fine impressed dorsal line, not extending beyond the middle: *elytra* longer than the thorax, quadrate, with numerous fine longitudinal wrinkles: *wings* white: *abdomen* somewhat darker colored than the elytra, sparsely and coarsely punctured penultimate segment as the two preceding ones together; pubescent: *feet* color of the body.

This species is confessedly an important addition to the Insect Fauna of the United States, particularly as but another species is known or described, viz., *quadricornis*, Kirby. The species is very rare.

OMALIID Æ, Leach, Er.

OLOPHRUM, Erichson.

O. *emarginatum*, Er.—*rotundicolle*, Say. In our presumed specimens of this species, the thorax at base is almost truncate, the apex slightly emarginate, the lateral margins but slightly piceous, the apex of the elytra and the posterior margins of the abdominal segments not piceous; apex of abdomen testaceous, and feet rufous, corresponding in every other respect with Say's description of O. *rotundicolle*. Not rare, occurs every spring on the blossoms of Red Maple.

ANTHOBIUM, Leach.

A. *dimidiatum*. Testaceous; abdomen black.—1½ l. long. Pennsylvania. *Silpha testacea*, Melsh. Catal. 344.

Head each side between the eyes, with a short, obsolete, longitudinal impressed line; minutely and faintly punctured, testaceous with the base dusky: *antennæ* incrassated towards the tip, a little longer than the thorax, testaceous, slightly pubescent; *palpi* testaceous: *thorax* some narrower than the elytra, transverse; sides rounded, with the base and apex truncate: anterior angles rounded, posterior ones almost square; an obsolete, impressed dorsal line, rather most distinct before the posterior margin; minutely and sparsely punctured, and finely wrinkled, testaceous, longitudinally dusky in the middle: *scutel* testaceous: *elytra* twice as long as the thorax, densely and strongly punctured, testaceous: *abdomen* black, or black brown, slightly piceous, glabrous, acuminate at apex: *pectus* and *feet* testaceous; *tarsi* dilated.

Descriptions of New North American Coleoptera.

BY REV. D. ZEIGLER, of York, Pa.*

OXYPORUS, Fabr.

O. *pulcher*. Reddish-brown; elytra, each with a broad oblique whitish band, commencing at the humeral angle and terminating on the posterior margin near the suture. Length nearly 4 lines.

Body reddish-brown, polished. *Head* large, with numerous dilated punctures on the occiput, punctures sometimes confluent, three slight indentations nearly on a line between the eyes; a somewhat prominent, polished, suborbicular elevation on the exterior region above the eyes, which is included by a distinct semicircular impression proceeding from the inferior portion of the neck and running nearly parallel with the posterior margin towards the vertex, then curving regularly downward and outward till it reaches the eye, where it becomes obsolete. *Mouth* pale honey-yellow. *Mandibles* very robust, as long or longer than the head; rather much arcuated; dark reddish-brown, their

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bases on the inner side yellowish. *Antennæ* and *palpi*, dark, reddish-brown. *Thorax* with an abbreviated impressed dorsal line, and a double punctiform impression each side behind the middle; a regular series of distant punctures near the anterior margin. *Elytra*, each with a broad oblique whitish band proceeding from the humerus and terminating on the posterior margin near the suture: region of the scutel, suture, and lateral margins from near the humerus to the tip, dark reddish-brown, the brown color extending inwards on the posterior angle half way to the suture; an indented subsutural line, obsoletely punctured: two abbreviated deeply punctured striæ on the middle, of which the anterior one is obsolete. *Tergum* dark-brown, with a piceous tinge towards the tip. *Feet* and beneath dull yellowish.—Western Pennsylvania.

DIACANTHUS, Latr., Germ.

D. *splendens*. Brownish-cupreous, polished; epipleura and feet rufous. Length 5½ lines.

Body dark-brownish, with a cupreous tinge, highly polished. *Head* coarsely and confluently punctured, with a frontal impression. *Antennæ* hairy, slightly serrated, not attaining the base of the thorax; second joint very short, little more than one-third the length of the third which is a little longer than the fourth joint. *Thorax* subquadrate, hardly longer than broad; dorsal line obvious; obsoletely indented each side behind the middle; posterior angles rather prominent, tinged with rufous, a little excurved; punctures large, profound, smaller on the disk. *Scutel*, suborbicular. *Elytra* broadest behind the middle, abruptly narrowed towards the tip; interstitial spaces slightly convex, numerously and minutely punctured. *Epipleura* rufous. *Feet* rufous. Western Pennsylvania.

SCYRTES, Latr.

S. *suturalis*. Black; suture of the elytra in the middle fulvous; lateral thoracic margins white; 1½ lines long; ¾ line wide.

Black, slightly and finely downy. *Thorax* with the lateral margins and area of posterior angles whitish. *Elytra* finely and densely wrinkled, with a short, common, linear fulvous spot on the middle. Beneath black. *Labrum* piceous. *Antennæ*, *knees*, *tibia* and *tarsi*, testaceous. *Femora* blackish. Pennsylvania.

HYDNOCERA, Newm.

H.? *longicollis*. Black; thorax elongated; elytra with a yellowish subsutural vitta on the basal half. Length 2½ lines: breadth about ¼ line.

Body deep black, shining, elongated-linear, with numerous erect, cinereous hairs. *Head* not indented between the eyes. *Mouth* beneath, *palpi*, *antennæ*, and *labrum* yellow. *Thorax* narrow, elongated, and but slightly dilated a little beyond the middle. *Elytra* abbreviated, covering about two-thirds the length of the abdomen; densely and confluently punctured; a pale yellowish subsutural vitta, commencing at the base and terminating a little before the middle. *Feet* yellow. *Beneath* black. Pennsylvania.

SPERCHEUS, Fabr.

S. *tessellatus*. Reddish-brown: head and thorax deeply punctured, the

latter slightly indented each side near the base; elytra with punctured striæ, sprinkled with black. Length 3½ lines: breadth 2¼ lines.

Body reddish-brown. *Head* obscurely brown, flat, deeply punctured. *Labrum* short, obtusely emarginate. *Thorax* piceous, the sides pale; punctured; an indentation each side, near the basal margin, and a slight impression on the middle, near the base. *Scutel* black, forming an oblong triangle, with a few scattered profound punctures. *Elytra* reddish-brown, sprinkled with irregular black spots; region of the scutel immaculate; punctate-striate: alternate interstitial lines slightly elevated behind. *Antennæ, palpi,* and *feet,* dark-brown. Pennsylvania.

HYDROPHILUS, Fabr.

H. *ovalis*. Black, oblong-oval; antennæ and palpi piceous. Length 15 lines.

Body black, with a greenish tinge, oblong-oval. *Head* with irregular impressed punctures each side, on the front and before the eyes; orbits punctured. *Clypeus* deeply emarginate. *Antennæ* and *palpi* piceous. *Thorax* with impressed punctures near the anterior angles; a series of punctures each side, and a few each side before the middle, near the anterior margin. *Elytra* with four series of punctures, of which the third is abbreviated anteriorly, and the fourth double; lateral margins finely and closely punctured. *Pectus* bifid. *Postpectus* with minute yellowish hairs. *Sternum* canaliculate before; posterior half with a slightly impressed line. Beneath black; venter with an obsolete rufous spot on each segment. Pennsylvania.

This species somewhat resembles the H. *triangularis* of Say, but may be readily distinguished from that insect by the more oval form of its body.

COPROBIUS, Latr.

C. *obtusidens*. Black; clypeus not profoundly emarginate at tip; teeth of the tibiæ short, obtusely rounded. Length 9 lines: breadth 6 lines.

Body deep black. *Clypeus* not profoundly emarginate at tip, tip but slightly reflected; lateral edge, from the tip to beyond the middle, subrectilinear. *Antennæ* and *palpi* reddish-piceous, club of the former dull rufous. *Elytra* striated; striæ impunctured; interstitial spaces with numerous small, elevated points. *Teeth* of the anterior tibiæ proportionally short, obtusely rounded: the posterior tooth rather small, and widely separated from the others. Pennsylvania.

A very rare insect. It is larger than the C. *volvens*, F., and differs from it in colour, being of a deeper black, and in the denticulation of the anterior tibiæ, the terminal tooth being more remote from the two anterior ones, leaving a wider space which is occupied by four small roundish tubercles instead of two, as is the case in that species. It is also distinguished from the *volvens* in having the clypeus less rounded, less deeply emarginated, and much less acutely angulated at each end of the emargination.

PANDARUS, Meg.

P.? *brunneus*. Reddish-brown, hairy; eyes black; antennæ and feet dull rufous. Length, rather more than 2 lines.

Body oval, a little oblong, somewhat depressed; dark reddish-brown, covered

with erect, rather long, yellowish hairs. *Head* irregularly punctured, transversely indented on the front; a somewhat rounded, rufous elevation each side before the eyes and over the insertion of the antennæ. *Antennæ* rufous; second and third joints very short. *Clypeus* rufous. *Labrum* and *palpi* rufous, the former transversal. *Eyes* black, prominent, rather large. *Thorax* transverse, abruptly narrowed each side near the posterior angles; lateral margins arcuated, a little reflected; posterior angles terminating in a short acute tooth; numerously and coarsely punctured. *Scutel* triangular, rather large, impunctured. *Elytra*, punctures rather large, irregular, and sometimes confluent. *Feet* dull rufous. Pennsylvania.

CISTELA, Fabr.

1. C. *marginata*. Blackish-brown; thorax pale-sanguineous, with a blackish spot on the disk; lateral margin and suture of the elytra yellowish-red. Length 6 lines.

Body blackish-brown. *Head* blackish, densely and minutely punctured; a transverse indentation between the antennæ. *Maxillary palpi* piceous. *Antennæ* dark-brown, tip of the terminal joint yellowish-red. *Thorax* pale-sanguineous, with a blackish spot on the disk; yellowish-sericeous; posterior angles nearly rectangular; an obsolete longitudinal dorsal impression, which is more apparent on the middle. *Scutel* dusky at base, tip paler. *Elytra* with minute yellowish hairs; striated; striæ finely punctured; interstitial lines rather flat; lateral margins and suture, yellowish-red. *Feet* and beneath dark-brown. Pennsylvania.

2. C. *erythroptera*. Black; antennæ, palpi, feet and elytra, testaceous. Length 4 lines.

Cistela erythroptera, Melsh. Catal.

Head blackish, with a dilated transverse impression between the antennæ. *Labrum* piceous. *Thorax* black, with an obsolete impressed dorsal line; a transverse dilated impression on the middle near the basal margin, and an indentation each side near the lateral margin; posterior angles subacute. *Elytra* pale-testaceous, somewhat sericeous; striated; striæ finely punctured; interstitial lines convex. Beneath shining black. Pennsylvania.

PEDILUS, Fisher.

1. P. *nigricans*. Bluish-black; two first joints of the antennæ, labrum, and base of the palpi, pale-yellowish. Length 3 lines.

Body bluish-black, polished, with yellowish-cinereous hairs. *Head* black, shining; front with an oblique, dilated impression each side between the eyes. *Antennæ*, two first or basal joints, pale-yellowish. *Palpi*, at base, pale-yellowish, terminal joint fuscous. *Labrum* and *mouth* beneath, dull yellowish. *Thorax* blue-black, polished; an abbreviated impressed dorsal line; a dilated impression near the basal margin before the scutel; basal margin pale piceous. *Elytra* bluish-black; rugosely punctured; punctures transversely confluent on the middle. *Feet* and beneath bluish-black; tarsi paler. Pennsylvania.

2. P. *hæmorrhoidalis*. Elytra blue, with yellow tips; thorax, tip of the abdomen, and feet, yellow.

Pedilus hæmorrhoidalis? Dejean's Catal. Length 3 lines.

Head black, polished. *Antennæ* reddish-brown, two basal joints yellowish. *Labrum*, *palpi*, and *mouth* beneath, yellow. *Thorax* yellow, with a few

scattered, yellowish-cinereous hairs. *Elytra* blue, somewhat rugose, with obvious dilated punctures furnishing minute hairs; each with a polished, yellowish, slightly elevated spot at tip. Beneath blue. Tip of the abdomen and feet yellow. Pennsylvania.

3. P. *ruficollis*. Blackish-blue; thorax, antennæ and feet, rufous. Length rather more than 3 lines.

Body blackish-blue, with short, yellowish-cinereous hairs. *Head* deep black, polished. *Thorax* pale rufous, polished. *Elytra* blackish-blue; rugosely punctured, punctures transversely confluent on the middle. *Feet* pale rufous. Beneath blackish-blue. Pennsylvania.

4. P. *marginicollis*. Blackish; thorax yellow, with a black spot on the middle.

Pedilus marginicollis. Dr. Melsheimer in lit. Length nearly 3 lines.

Body blackish, with pale yellowish hairs. *Head* deep black, shining, with a transverse indentation between the eyes. *Antennæ*, two first or basal joints, yellow. *Palpi* dull yellowish, terminal joint fuscous. *Mouth* beneath yellowish. *Clypeus* at tip, and labrum, pale piceous. *Thorax* honey-yellow, polished, with a blackish spot on the disk. *Elytra* bluish-black; rugose; densely punctured, punctures transversely confluent. *Feet* fuscous; tip of the tibiæ, and tarsi, pale yellowish. *Beneath* deep black.

Var. a. Thorax entirely destitute of the thoracic spot. Pennsylvania.

Monohammus, Meg.

M. tomentosus. Brown; the entire surface of the body, antennæ, feet, and greater part of the elytra, whitish tomentose, the latter spotted or interrupted with brown. Length ♀ 1¼ lines.

Body brown, densely covered with fine whitish prostrate hairs. *Head* with a longitudinal impressed line between the antennæ; edge around the antennæ, much elevated, somewhat spinose on the inner side. *Mouth* beneath, and *clypeus*, honey-yellow, the latter brownish at tip. *Mandibles* black. *Thorax* with a rather long, obtuse, somewhat elevated spine each side behind the middle. *Scutel* yellow. *Elytra* whitish tomentose, spotted or interrupted with brown; behind the middle, a large, irregular, transverse, brown spot nearly reaching the suture. Pennsylvania.

Œdionychis, Latr.

Œ.? *hispida*. Blackish, hairy; antennæ, basal portion pale rufous, tip dark brown or blackish; feet yellowish, varied with piceous. Length 2 lines.

Body blackish, invested with numerous, rather long, erect, blackish and yellowish-cinereous hairs. *Head* obviously punctured, with an abbreviated longitudinal impression on the front. *Antennæ*, six first or basal joints pale rufous, tip dark-brown or blackish. *Thorax* oblong, narrow, rather broadest behind, somewhat rounded; lateral margins decurved, rectilinear; anterior portion not wider than the head; inequal; coarsely and confluently punctured, punctures larger and more obvious near the basal margin. *Scutel* forming an oblong triangle, yellowish-sericeous. *Elytra* with regular series of large, rather distant, profound punctures. *Femora*, posterior pair, above blackish-piceous, below rufous; anterior and intermediate pairs piceous, the base and apex paler; tibiæ and tarsi reddish-yellow, varied with piceous. Pennsylvania.

Description of New Species of North American Coleoptera.

By John L. Le Conte.*

1. Galerita *dubia*. Nob. Length 6 lines, breadth 3½ lines.

Head black, frontal impressions oblong, shallow; palpi and first joint of the antennæ ferruginous; remainder of the latter brown.

Thorax ferruginous; posterior transverse impression tolerably marked, straight; longitudinal line very slight: basal impressions shallow. Elytra black, striæ impunctate, beneath dark brown; legs and under part of the thorax ferruginous. Inhabits Georgia.

Differs from *G. Le Contei*, Dej., in not having a red spot on the head, and in the basal impressions of the thorax, which are shallower; from *G. bicolor*, Drury, (*G. Americana*, Dej.,) in having the longitudinal line of the thorax less impressed, and the posterior transverse impression more distinct. The thorax is also less retracted posteriorly: it differs from all the other species in having the striæ of the elytra impunctate.

2. Plochionus *vittatus*. Nob. Length 4 lines, breadth 1¾ lines. Ferruginous; tips of mandibles and eyes black; frontal impressions oval, very deep: thorax covered with transverse wrinkles; transverse impressions scarcely visible, longitudinal line entire, deeply marked; basilar impressions deep, oblong, and transverse: a wide and deep fovea impressed on each side near the middle of the thorax: lateral margin widely depressed towards the posterior angles.

Elytra, with a broad black sutural vitta, and a lateral spot of the same colour behind the middle: striæ deep, impunctured. Body and legs dark ferruginous. Inhabits Florida.

3. Aptinus *americanus*. Dej. Cat. Length 5¾ lines; breadth 2½ lines.

Head, thorax, and legs ferruginous. Antennæ ferruginous, growing dusky towards the extremity. Head smooth, with a deep and long longitudinal impression between the eyes; eyes black. Thorax sparsely punctured; transverse impressions none: longitudinal line well marked; with a few transverse wrinkles on each side.

Elytra bluish-black, costæ smooth; intervals deep, wide, and punctured. Sternum ferruginous; abdomen very dark brown, almost black. Inhabits Georgia.

Resembles much in form and size Brachinus *quadripennis*, but it is narrower, and the elytra are less parallel.

4. Brachinus *strenuus*. Nob. Length 7¾ lines; breadth 3¾ lines.

Head, antennæ, palpi, thorax, sternum, and legs ferruginous; abdomen dark brown, with a reddish spot in the middle of the upper part: head sparsely punctate particularly at the posterior part. Thorax scarcely wider than the head, thickly punctured.

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Elytra bluish-black, punctured; interstices of the costæ narrow at the bottom. Inhabits Georgia. (Common.)

Resembles both the *fumans*, Fabr., and *librator*, Dej.; but the thorax is narrower and more rounded anteriorly than the former, and less so than the latter. The head is larger and the frontal impressions broader than in either; the antennæ are thicker and darker than in the *fumans*, but want the dark spots observable on those of the *librator*. The elytra are wider, the interstices are deeper than in either, and wider than in the *fumans*.

5. BRACHINUS *Le Contei*. Dej. Cat. Length 6 lines; breadth $2\frac{3}{5}$ lines. Inhabits Georgia.

Resembles the *viridipennis*, Dej., and *perplexus*, Dej.; the former in size and form, the latter in form, but is easily distinguished by the frontal impressions, which are shallow and punctate; in the *viridipennis* they are still shallower and more punctate; in the *perplexus* they are rugous; the first two joints of the antennæ and base of third and fourth, are ferruginous; tips of these last are brown; in both the remainder is brown, but in the *perplexus* the third only is brown at the tip. The thorax is wider before; the anterior angles are sharper and more projecting. Elytra deep blue to blackish blue. Abdomen deep reddish brown.

6. BRACHINUS *cyanopterus*. Dej. MS. Length $5\frac{1}{2}$ lines; breadth $2\frac{3}{5}$ lines. Inhabits New York.

Resembles the *cordicollis*, but is larger, and easily distinguished by the deeper and brighter blue of the elytra; the antennæ are likewise ferruginous, without spots, growing darker towards the extremity. The thorax is rather narrower anteriorly, and the costæ of the elytra are more apparent. Abdomen red, sides brownish.

7. BRACHINUS *viridis*. Nob. Length 6 lines; breadth $2\frac{1}{4}$ lines. Inhabits Georgia.

Resembles the *viridipennis*, but is narrower; the thorax is not so much rounded on the sides, the basal impressions are more distinct. The elytra are of a paler and brighter green, more thickly and coarsely punctured; the costæ are more strongly marked. The first two joints of the antennæ and a spot on the third are ferruginous; in the *viridipennis* the first three and sometimes the four are ferruginous, with a small brown spot on the third and fourth.

8. BRACHINUS *neglectus*. Nob. Length $5\frac{1}{2}$ lines; breadth $2\frac{1}{4}$ lines. Inhabits Georgia.

Somewhat resembles the *quadripennis*, but is larger and proportionably broader; the elytra are of the same bluish-black colour, but less rounded at the anterior angles, they are more distinctly costate, and the intervals are narrower. The first two joints of the antennæ are ferruginous, and the rest brown, whilst in the *quadripennis* the base of the third is also ferruginous. The thorax is also more retracted posteriorly; and the anterior angles more acute; the basal impressions are prolonged and extend almost to the middle of the thorax.

9. BRACHINUS *tenuicollis*. Nob. Length 6 lines; breadth $2\frac{1}{4}$ lines.

Also resembles the *quadripennis*, but the elytra are more blue, and the first five costæ of the elytra are more apparent than the rest, and are impunctured on the top. The first two joints of the antennæ and base of the third are ferruginous, the rest brown. Sides of the head coarsely punctured, frontal impressions longer, more rugous and more punctured. The thorax is more retracted posteriorly, wider and more rounded anteriorly.

10. BRACHINUS *patruelis*. Dej. Cat. Length 4¼ lines; breadth 1¼. Inhabits New York.

Resembles somewhat B. *cordicollis*, but the frontal impressions are longer; first three joints of antennæ and base of fourth ferruginous; the third has a small brown spot at the extremity, and the remaining joints are also brown. In the *cordicollis* the two first and base of the third only are ferruginous: thorax much wider and more rounded anteriorly. Elytra bright blue; costæ slight, and much less elevated than in *cordicollis*.

11. SCARITES *otus*. Nob. 12. S. *ephialtes*. Nob. 13. S. *intermedius*, Nob. 14. S. *affinis*. Nob. 15. S. *subterraneus*. Fabr. 16. S. *affinis*. Nob. (As we intend publishing a monograph of these species in a few weeks, it will be useless to add descriptions here.)

17. CLIVINA *impressifrons*. Nob. Length 3¼ lines; breadth ⅓ line.

Dark rufous: front with three wide and deep longitudinal impressions, the middle one abbreviated at the ends, so as to form an oblong fovea. Thorax oblong, rounded behind; but little convex; longitudinal line deeply impressed. Elytra narrower than the thorax, parallel; striate, striæ punctate: third interval with three impressed points. Inhabits New York.

Resembles C. *rufescens*, but differs from it in being larger, in having the front deeply impressed, and the elytra narrower than the thorax.

18. CLIVINA *convexus*. Nob. Length 2½ lines; breadth ⅓ line.

Head and thorax black; the latter convex and round: anterior transverse impression scarcely visible: median line distinct.

Elytra piceous, with a large transverse rufous sutural spot near the extremity: deeply striate; striæ strongly punctate, with but one impressed point on the third interval, near the extremity. Inhabits Georgia.

Resembles the C. *bipustulatus*; but is readily distinguished by its rounded thorax and the very slight anterior transverse impression.

19. REMBUS *striatopunctatus*. Nob. Length 6½ lines; breadth 3½.

Black, shining: palpi black, with the extremity of each articulation rufous; antennæ blackish brown: frontal impressions deep, incurved at the middle, as in the *impressicollis*. Medial line of the thorax deeply impressed, and abbreviated at both ends: transverse impressions indistinct, basal ones deep, with an inwardly deep cut furrow beyond the middle.

Elytra striate; striæ punctate: the second one incurved at the tip: the third and fourth and fifth and sixth united at the tip; interstices convex, with an impressed point on the middle of the third rudimental striæ, a mere point between first and second striæ. Inhabits Pennsylvania. Found at Carlisle by S. F. Baird.

Differs from R. *impressicollis* in the transverse impressions of the thorax which in that species are very distinct, also in the basal impressions and in the striæ of the elytra being very distinctly punctured; in the *impressicollis* they are quite smooth. It is a much larger insect.

20. REMBUS *assimilis*. Nob. Length 5¼ lines; breadth 2¼ lines.

Black, shining; palpi and antennæ dark ferruginous brown; head as in the preceding: medial line of the thorax deep: anteriorly abbreviated; posteriorly reaching to the base; posterior transverse impression deeply marked in the middle: striæ of the elytra punctate: the second not incurved; third interval with an impressed point in the middle: an indistinct rudiment of a striæ at the base between the first and second. Inhabits Georgia.

At first sight this insect strongly resembles an *anisodactylus*, but it possesses all the characters of the genus to which I have referred it.

21. CHLÆNIUS *congener*. Nob. Length 7½ lines; breadth 3 lines.

Head and thorax coppery, with a greenish tint, the punctures on the latter large and confluent. The thorax obcordate, slightly narrowed behind; medial line deeply impressed, abbreviated anteriorly and not reaching posteriorly farther than the posterior transverse impression, which is very deep and strongly marked: basal impressions very deep, oblong, rather inclining inwards: elytra black, with a tinge of blue, striæ scarcely punctate; body beneath black, palpi, first three joints of antennæ and legs ferruginous. In other respects same as C. *cobaltinus*. Inhabits Georgia.

Closely resembles C. *cobaltinus*; but is easily distinguished by the transverse posterior impression of the thorax, which is much deeper. The medial line does not extend so far backwards, and the elytral striæ are scarcely punctate.

22. CHLÆNIUS *patruelis*. Dej. Cat. Length 6½—7 lines; breadth 2½—3 lines.

Above green, beneath black; antennæ and legs ferruginous. Head coarsely punctured, particularly at the posterior part; frontal impressions distinct. Thorax very coarsely punctate, much longer than wide, narrowed before and behind, subcordate, much curved on the sides: medial line on account of the close and deep punctures not very apparent: basal impressions deep and triangular. Elytra much wider than the thorax, covered with a short reddish pubescence; striæ punctured; intervals plain, covered with fine and close punctures. Inhabits Georgia.

Resembles slightly the *sericeus*, but is distinguished at first sight by its narrow thorax.

23. BADISTER *terminalis*. Nob. Length 2½ lines: breadth ½ lines.

Head, thorax, and body beneath black: palpi, antennæ, coxæ and legs ferruginous, frontal impressions of the head very large and shallow. Thorax smooth, obcordate, the angles rounded, the posterior less than the anterior: transverse impressions well and deeply marked, the anterior curved: longitudinal line entire and deep: rounded posterior margin a little elevated and reddish. Elytra smooth, piceous, with the margin, suture, and large spot at the base ferruginous, gradu-

ally changing into the piceous colour of the remainder. Striæ very indistinctly punctured. Third interval with three impressed points rather indistinct. Inhabits New York.

24. BADISTER *testaceus*. Nob. Length 2 lines; breadth ¾ lines.

Smooth, shining, testaceous, inclining to piceous on head and elytra: joints of the antennæ gradually increasing in thickness to the extremity: frontal impressions deep and rounded. Thorax obcordate, lengthened, scarcely wider than the head; anterior angles rounded, posterior acute, anterior transverse impression tolerably marked, posterior one obsolete: longitudinal line well marked and entire: basal impressions deep, oblong. Elytra wider than the thorax, parallel, almost plane, deeply striate, striæ impunctured, sides of the striæ covered with small transverse wrinkles a little oblique, which cutting the striæ, give them an almost reticulated appearance. Inhabits Pennsylvania.

25. BADISTER *micans*. Nob. Length 4½ lines; breadth 1¾ lines.

Black; head, rhinarium, and upper lip testaceous, palpi ferruginous, with a black spot on the last joint: antennæ brown, the first two joints rufous: frontal impressions rather larger, distinct: an impressed point near each eye. Thorax plane black, margined with reddish brown: the margin sinuate near the posterior angles: base rugous: transverse impressions tolerably distinct. Longitudinal line deeply marked. Basal impressions large and deep. Elytra piceous, iridescent, not sinuate at the extremity; striæ tolerably deep, impunctured: intervals broad and plane. Third interval with two impressed points. Body beneath piceous, legs testaceous. Inhabits Georgia.

This insect differs very much in its general appearance from all the species of this genus, and it may perhaps be necessary hereafter to separate it from the genus in which I have placed it.

26. OODES *picipes*. Nob. Length 5½ lines; breadth 2½ lines.

Resembles the *americanus*, but is smaller; the palpi and antennæ are entirely piceous; the thorax is more convex; the posterior transverse impression is scarcely visible; the longitudinal line almost obsolete; basal impressions very shallow and indistinct: the elytra are more deeply striate; and the striæ are impunctate; the third interval with two impressed points: underside of the body black; legs piceous. Inhabits Georgia.

27. PRISTONYCHUS *americanus*. Nob. Length 5⅛ lines; breadth 1¾ lines.

Apterous; black, shining; beneath smooth; palpi, antennæ, and legs dark ferruginous; frontal impressions tolerably deep and slightly rugous: thorax, oblong, almost square, wider than the head, narrowed behind, the anterior angles projecting, posterior ones rounded; covered with very slight transverse undulating wrinkles; lateral margin elevated posteriorly; the base cut almost square: anterior transverse impression small, incurved; posterior deeply marked; mesian line deep, abbreviated at each end by the transverse impressions, the anterior of which cuts it at right angles: basal impressions oblong, deep, slightly rugous.

Elytra wider than the thorax, lightly convex: not sinuated at the extremity; deeply striate; striæ impunctured, with two impressed points on the third inter-

val, near the second striæ; rudimental striæ at the base short and straight; epipleuræ with a longitudinal elevation near the base. Inhabits Georgia.

28. Calathus *distinguendus*. Nob. Length 5½ lines; breadth 2 lines.

Piceous black, shining, smooth; palpi, antennæ and legs ferruginous; front with a small impression at the base of the antennæ, and a linear one near the eyes: thorax smooth, with some indistinct transverse undulating wrinkles, quadrangular, narrowed before, the anterior angles projecting and a little rounded, base cut square, so as to make the posterior angles almost right: lateral margin rufo-piceous, a little curved, dilated, and depressed posteriorly; anteriorly; anterior transverse impression tolerably distinct; posterior well marked: medial line slight, abbreviated by the transverse impressions, with the anterior of which it forms an angle, so as to leave a well defined triangular depression in front; basal impressions slight, scarcely distinct from the depressed base of the thorax.

Elytra striate, striæ impunctured, with three impressed points on the third interval, the two upper ones near the third, the lower one close to the extremity of the second striæ. Inhabits Georgia.

Larger than C. *gregarius*, which it very much resembles: the thorax and its margins are proportionally much wider, more curved, and more reflexed; and it wants the impressed point on each side of the thorax near the margin, which is very apparent in the *gregarius:* the anterior transverse impression is strongly marked, whereas in C. *gregarius* it is much less apparent. It is also much darkened beneath.

29. Anchomenus *Le Contei*. Dej. Cat. Length 9½ lines; breadth 2 lines.

Very much resembles the A. *extensicollis;* but differs in the thorax being wider, and more rounded: the basal impressions are longer, perpendicular to the base, and curving upwardly and outwardly: whilst in the *extensicollis* they are oblique, so as to make them wider at the base; from this last circumstance the middle of the base between the impressions is much wider in A. *Le Contei* than in A. *extensicollis*.

It may, however, prove to be nothing more than a variety.

The Committee, to whom was referred the following paper, by Mr. Haldeman, reported in favour of publication:

Descriptions of Insects, presumed to be undescribed.

By S. S. Haldeman.

Leucospis *integra*. Black, covered with pale yellowish pile; tegulæ and legs yellow. ♂ 5 millim. long.

♂ Antennæ yellowish beneath: thorax scabrous, with a spot of yellow pile posteriorly, wings translucent: legs yellow, except the basal half of the first and second pairs of femora, posterior femora black tipt with yellow.

Hedychrum *janus*. Brilliant, above violet, beneath uniform green: wings tipt with fuliginous. 5 mill. long.

Head coarsely punctured, green, margined with violet behind, antennæ black: anterior margin of the thorax green, punctured; metanotum coarsely punctured, violet: abdomen polished, violet purple, having a green reflexion, changing its position with the light; legs bright green, changing to violet above, tarsi fuscous.

TYPHLOPONE *pallipes*. Minutely punctured, dull reddish-brown, terminal segments of the abdomen, antennæ, and mandibles, paler; legs testaceous. 6 mill. long.

Head subquadrate, narrowing posteriorly; mandibles widest in the middle, direct, with the tip incurved, inner margin coarsely serrate-dentate: pronotum inflated, with an impressed mesial line: abdomen divided into three principal segments, of which the first is subglobular, the second considerably larger, conical, largest posteriorly, terminal segment of equal diameter with the preceding, but twice as long, with a dark indistinct transverse band about the middle: provided with a sting. Found in old stumps in June.

EUMENES *substricta*. Black, minutely punctured, abdominal stricture very deep, with a narrow ring of yellow at the extremity of the basal segment above. 8 lines long.

Head large, wings steel blue, with a small yellow spot below the base of the anterior pair; thorax slightly margined with yellow anteriorly; tarsi fuscous. Somewhat larger than E. verticalis, Say, and distinguished by the almost uniform black colour, and the base of the abdomen being fusiform on account of the depth of the incisure.

SCAPHINOTUS *flammeus*. Reddish brown, head slightly transversely rugose between the antennæ; pronotum proportionally wider, and the profile flatter above when viewed laterally than in S. elevatus; elytra coarsely punctate striate, sinuate at tip, pale brilliant violet, with the margin, and several tarnished spots of green. 10 lines long.

An imperfect specimen in the cabinet of the Academy, from Marietta, Ohio. Distinguished from S. elevatus by the wider prothorax and elytra, and lighter colour. Not having seen the female of the latter, I am unable to point out its distinction from the proposed species.

SCARITES *substriatus*. Black, shining; antennæ, palpi, and tarsi dark testaceous: head large, nearly as wide as the thorax; mandibles wide at the base, inner superior ridge curved with two flexures, intermediate groove very wide at the base: elytra wide, subparallel, convex, with six wide distant inconspicuous striæ, and a 7th submarginal one obsolete. 13 lines long.

SCARITES *distinctus*. Shining black, palpi, antennæ, and tarsi obscure testaceous, frontal impressions profound, groove of the mandibles narrowing gradually: elytra wider than the prothorax, slightly narrowed towards the base, flattened, with six slightly crenate striæ, and a 7th obsolete, 3d with a puncture near the base, another towards the extremity, and a 3d puncture at the extremity of the 3d interstice. 10½ lines long. Hab. Georgia? Prof. Hentz.

SCARITES *subterraneus*, Fabr. General character of the preceding, mandibular groove narrow and deep, left one continued nearly to the extremity of

the mandible: elytra narrower than the prothorax, striate and slightly crenate, especially towards the base, and in a good light. 8½ lines long.

Var. *a*. Finely and regularly punctate-striate throughout.

Var. *b*. Striæ filled with numerous fine punctures.

Agrion *venerinotata*. ♂ Yellow, eyes reddish-brown, connected by a broad black band, a transverse black spot upon the clypeus: thorax black above, with a narrow dorsal line of yellow: abdomen marked above with 3 black ♀-shaped crosses, basal segment dark polished green above, continuing to the middle of the 2d segment, where it ends in a point; wings short. 10 lines long.

Termes *frontalis*. *Soldier*. Amber color, front deeply notched, a small eye-like tubercle at the inner base of the tentacles: mandibles suddenly incurved, rufo-testaceous at base, changing into black towards the tip; antennæ 15-jointed: legs pale, with the ungues darker. 3 lines long. *Male?* Black, region of the mouth, and legs (except the femora) pale yellowish. 4½ lines long to the extremity of the wings, which are longer than the body, and extend beyond it more than half their length. Found in or beneath logs, the winged individuals appearing in May in Pennsylvania.

Correction.—Hoplia modesta, Proceedings, Vol. I., p. 304, is apparently identical with Germar's Melolontha mucorea.

Meeting for Business, April 30, 1844.

Vice President Morton in the Chair.

The Committee, to whom was referred a paper by Dr. Hallowell, describing new species of African reptiles, reported in favour of publication.*

The Committee on Colonel Abert's communication on a fresh-water univalve, found in the vicinity of Washington, D. C., reported it to be the Paludina vivipara of authors.

The Academy then proceeded to ballot for Members and Correspondents, with the following result:

MEMBER.

J. Fisher Leaming, of Philadelphia.

CORRESPONDENT.

Rev. D. Zeigler, of York, Pennsylvania.

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* The publication of this paper is necessarily deferred until the next number.

PROCEEDINGS

OF THE

ACADEMY OF NATURAL SCIENCES

OF PHILADELPHIA.

VOL. II. MAY AND JUNE, 1844. No. 3.

Stated Meeting, May 7, 1844.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO LIBRARY.

Fifty-seventh Annual Report of the Regents of the University of the State of New York. Albany: 1844. From the Regents.

A System of Mineralogy. By James D. Dana, A. M. Second Edition, pp. 633. 8vo. New York and London: 1844. From the Author.

Proceedings of the American Philosophical Society, Vol. IV., No. 28. January to April, 1844. From the Society.

Almanach der Königlichen bayerischen Akadamie der Wissenschaften du Munchen. Munich, 1843. From the Academy.

A letter was read from the Rev. William Herbert, dated Spofforth, April 2d, 1844, acknowledging the receipt of his notice of election as a Correspondent.

The Chairman read a letter from Dr. Edmund Ravenel, dated Charleston, 26th of March, 1844, in reference to some specimens of fossils from the Cretaceous strata of South Carolina, sent by him with descriptions for publication.

The specimens were exhibited, and the descriptions read;

and on motion referred to the following Committee: Mr. Phillips, Dr. Morton, and Mr. Conrad.

Descriptions of new species of African Reptiles.

By EDWARD HALLOWELL, M. D.*

Genus EUPREPIS, Dum. and Bibron.

E. *Blandingii.* The head is of moderate size, triangular, narrow, flattened above; the snout is somewhat prolonged and rounded in front; the plates upon the upper surface of the head, as well as those upon the sides are perfectly smooth; the rostral plate is large, pentagonal, presenting an obtuse angle at its summit; the nasal plates are of moderate size, triangular, rounded posteriorly; the supero-nasal are narrow, oblong, in contact with each other; the inter-nasal plate is larger, presenting the form of a lozenge with its lateral angles truncated, the posterior angle is acute, the anterior obtuse; it is in contact in front with the two supero-nasal plates, its anterior angle not reaching quite so far as the rostral; the fronto-nasal are of moderate size, sub-pentagonal, their lateral and inferior margins are in contact with the superior margin of the two frenal plates; the freno-nasal plate is small, triangular; the first of the frenal plates is oblong-quadrilateral; the second, which is much the larger of the two, is pentagonal; the frontal plate is pentagonal, much broader in front, rounded posteriorly; the fronto-parietal are oblong pentagonal, their anterior margins, or those which embrace the posterior margins of the frontal, are the smallest; they are in contact laterally with the two supra-orbitar, and posteriorly with the parietal and inter-parietal plates; the parietals are large, pentagonal; the inter-parietal is larger than either of the fronto-parietals, and terminates posteriorly in an obtuse point; there are four supra-orbitar and two freno-orbitar plates; the supra-orbitar are four in number, their exterior margin is bordered by a row of seven small oblong quadrangular plates; immediately behind them is a small rhomboidal plate, the upper half of which is received between the posterior supra-or-

* This paper was reported for publication in the last number, but was necessarily deferred.

bitar and the parietal plate; there is no occipital, but immediately behind the parietal are two oblong scales, much larger than the rest, presenting numerous striæ, or elevated lines upon their posterior margin; the labial plates are seven in number, of these the fifth is most remarkable, it is regularly quadrilateral, oblong, and much larger than either of the others, forming of itself one-half of the inferior margin of the orbit; the second, third and fourth, are rhomboidal; the first is irregularly quadrilateral; the sixth and seventh are pentagonal; the ear is of moderate size; its inferior margin is bordered with numerous small granules, and there are two or three small scales in front; the scales upon the body are hexagonal, more or less rounded posteriorly; those upon the back, sides, and tail, present three carinæ upon their surface, all of which are very distinct; here and there a smaller one may be observed at each extremity of a scale; there are eight scales immediately in front of the anus of nearly equal size.

Colour. The head, back, and upper part of the tail is of a bronze colour, with numerous spots of black; these spots are more abundant, and somewhat larger upon the upper part of the tail; there is a row of white spots extending along the side of the neck and body as far as the extremity of the tail; a broad black band passes along the side of the body, and one immediately behind the orbit, the former extending as far as the posterior extremities, becoming indistinct upon the tail; immediately below this is a white narrow vitta, commencing near the anterior extremity of the orbit and terminating in a line with the inferior extremity of the forearm when placed in contact with the side of the body; under surface of chin, throat, abdomen and extremities of a light silvery gray colour, slightly tinged with green; a number of small conglomerated spots of a black colour are observed upon the chin.

Dimensions.

	Inches.	*Lines.*
Length of head, - - - - - -	0	7
Greatest breadth posteriorly, - - -	0	3½
Length of body, - - - - - -	1	9
Length of tail, - - - - - -	3	4
" anterior extremities, - - -	0	9
" posterior, " - - - -	1	0

Habitat.—Liberia, W. Africa. This species was presented to

me by my friend Dr. W. Blanding. It resembles, if my memory be correct, (not having the work now by me,) a South African species described by Dumeril and Bibron, but I believe it to be distinct. The description is taken from a specimen preserved in spirits.

Genus IXALUS, Dum. and Bibron.

I. *concolor.* Head large, triangular, flattened above, snout slightly rounded, nostrils small, situated very near the mouth; eyes large, rather prominent; tympanum small but distinct, opening of the mouth of moderate size, tongue oblong-ovate, notched posteriorly, teeth in the upper jaw very numerous, small, of equal size; palatine teeth wanting; posterior nares rather large, rounded; eustachian foramina of nearly equal size as the nares, but less distinctly circular; extremities slender; fingers depressed, of moderate size, slightly palmated; terminal pellets circular, tubercles distinct, but not remarkably prominent, toes slender, palmated, terminal phalanges not included within the membrane; disks small; tubercles but slightly developed; skin smooth, except upon the abdomen, where it is granulated.

Colour. Body, head, and extremities of a uniform light chocolate colour; jaws and throat of a dirty white; abdomen and under surface of extremities dark chocolate.

Dimensions.

	Inches.	*Lines.*
Length of head, - - - - -	0	4
Greatest breadth, - - - - -	0	3½
Length of head and body, - - -	0	10
" posterior extremities to extremity of fourth toe, - - - - -	1	3⅛
" anterior to extremity of longest finger,	0	5½

Habitat.—Liberia, W. Africa. Specimen in Mus. Acad.

Genus LEPTOPHIS, Bell.

L. *gracilis.* Head large, rather broad, flattened, slightly pressed in front, covered with nine plates exclusive of the ros

and the two anterior orbitar, which extend upon the top of the head; rostral plate large, triangular, rounded in front, its apex projecting backwards a short distance toward the two anterior frontal plates; anterior frontal rather large, quadrangular; posterior irregularly quadrilateral, extending upon the side of the head, where they are in contact with the anterior orbital, the loral and the nasal plates; vertical plate pentagonal, much broader in front, pointed behind; supra-orbital irregularly quadrilateral, smooth, convex above, projecting very slightly over the eye; occipital large, pentagonal; nasal plates two in number with the nostril placed between them; but one anterior orbital plate, irregular in shape, much broader above; posterior frontal two in number, small, the upper the larger of the two; frenal region very slightly grooved; there are nine plates upon the upper jaw, the seventh the largest, the fifth and sixth going to form the inferior margin of the orbit; tongue long, bifid, enclosed in a sheath at its base, two rows of teeth in the upper jaw, on each side of the head, nostrils large, placed near the snout, immediately in front of the canthus rostralis, which is well marked, but much less distinct than in the following species; body long, slender, covered with quadrangular scales, strongly carinated both upon the back and sides; the inferior row is the largest; abdomen flattened, tail long and slender, tapering to a point, flattened inferiorly. Abdom. scuta 150, subcaud. 153.

Colour. Head, body, and tail grass-green above; abdomen and under part of tail of a lighter color, approaching to milky white upon the neck; a dark coloured vitta extends on each side of the flattened surface of the abdomen, from near the neck to the anus.

Dimensions.

	Inches.	*Lines.*
Length of head, - - - - -	0	9
Greatest breadth, - - - - -	0	5
Breadth between the orbits posteriorly, -	0	4
" " " anteriorly, -	0	3
Length of body, - - - - -	19½	0
" tail, - - - - -	14 (Fr.)	0
Greatest circumference, - - - -	0	13

Habitat. Liberia, W. Africa.

L. *Kirtlandii*. Head long, narrow, covered above with nine plates; rostral plate heptagonal, flattened above where it joins the two anterior frontal and the nasal plates; anterior frontal of moderate size, pentagonal; posterior frontal large, irregularly quadrilateral; vertical plate long, pentagonal, much broader in front than behind; supra-orbital plates large, irregularly quadrilateral, smooth, convex above, projecting over the eye, so as to give it a threatening appearance; occipital plates pentagonal, broader in front; nasal plates two in number, with the nostril placed between them; two small plates between the nasal and the anterior orbital plate; anterior orbital plate large, a portion of it appearing on the top of the head, between the supra-orbital and the posterior parietal plates; canthus rostralis very distinct; frenal region, or that portion of the side of the head between the eye and the nostril, deeply grooved: posterior orbital plates three in number: there are ten superior labial plates; the fourth and fifth going to form the inferior margin of the orbit; eye very large; tongue long, bifid at the extremity, enclosed in a sheath at its base; two rows of teeth in the upper jaw; body very long, slender, covered with oblong, narrow scales, which are smooth; tail long, and tapering to a point.

Colour. Head of a bronze colour above and upon the sides; a band of white extends from the snout as far as the posterior angle of the upper jaw; body of an obscure brownish color above, clouded with black; the abdomen presents very much the same dusky colour as the body, except at its anterior part, where it approaches to a dirty white. Abdom. scuta —, subcaud. 154.

Dimensions.

	Inches.	*Lines.*
Length of head, - - - - -	0	9
Greatest breadth - - - - -	0	$3\frac{1}{4}$
Length of body - - - - -	$15\frac{1}{4}$ (Fr.) 0	
" tail, - - - - -	9	10

Habitat. Liberia, W. Africa. I have named this species in honour of Dr. Kirtland, of Cincinnati, a distinguished naturalist, who has devoted much attention to the natural history of this country.

Stated Meeting, May 14, 1844.

VICE PRESIDENT MORTON in the Chair.

Two letters were read from Mr. I. G. Strain, U. S. Navy, Correspondent of the Academy, (now on an exploring tour through the interior of South America,) addressed to Mr. Phillips and Dr. Morton, dated City of St. Paul's, Brazil, February 26th, 1844; of which the following is an abstract:

The party had been reduced to three, Mr. Strain, Dr. Reinhart, and Mr. Christie, the others having left them from sickness and other causes. After having reached the head of navigation on the river Tiete, it was ascertained that the unhealthiness of the country through which they would pass in descending that river, was such as to threaten the lives of the party; the natives positively refusing to accompany them in the descent, and, without some assistance, the canoes could not be dragged over the portages. In consequence of this, the route was changed, and preparations made to descend the Parana-Panema, which has remained unexplored. A covered boat, twenty-two feet long and four feet beam, was built by the party, and every preparation made to commence the descent of the river in a few days. Dr. Reinhart had made numerous collections in various departments of natural science, although he was principal constructor of their little boat, which was so constructed as to be taken in pieces should it be required. Mr. Strain had made two journeys to distant cities, to complete arrangements for his expedition with the officers of the government, and had at length returned, found all ready, and the little party was on the eve of starting, in excellent health and spirits, and full of hope and confidence.

A letter was read from Mr. James Ombrosi, U. S. Consul at Florence, Italy, dated February, 1844, acknowledging the reception of his diploma, and announcing his intention of procuring for the Academy, and forwarding by the earliest opportunity, certain publications of learned Italian Societies.

Stated Meeting, May 21, 1844.

Vice President Morton in the Chair.

DONATIONS TO MUSEUM.

Skin of Diomedea exulans, and the head and beak of a Procellaria. From Mr. Samuel Grant, Jr., through Dr. Carson.

The following shells were presented by Mr. Peterson:

Helix Barbadensis, Lam., from Barbadoes; Donax meroe, Lam., and Murex cervicornis, from the Indian Ocean; and Cyprœa aperta, Sw., from Cape of Good Hope.

DONATIONS TO LIBRARY.

Memoire sur le Lac Mœris, presénté et lu a la Société Égyptienne le 5 Juillet, 1842. Par Linant de Bellefonds, President de la Société Égyptienne, &c. Alexandria: 1843. From the Author.

Catalogue of the Library of the American Philosophical Society. From the Society.

Dr. Morton exhibited the skull of a Hottentot, sent him by Mr. T. Watson, (now resident near the Cape of Good Hope,) through Dr. Gavin Watson, of this city. This is a female head, remarkable for having the Negro characteristics very strongly expressed. The face is prominent, the nose perfectly flat, the head narrow and elongated, but the whole structure rather thin and delicate. This cranium pertained to a woman of about twenty years of age; the facial angle gives 75 degrees; but the internal capacity, or size of the brain, measures but sixty eight cubic inches, which, Dr. Morton remarked, was as small an adult brain (with a single exception, and this, also, a native African) as he had ever met with. Dr. M. has shown the mean internal capacity of the Negro cranium to be 85 cubic inches;* so that this Hottentot skull presents a measurement of no less than 17 cubic inches below the average.

* See Proceedings, Vol. I., page 135.

On motion of Mr. Phillips, Resolved, That the Committee on Proceedings be authorised to present a bound copy of Vol. I. of the Proceedings, to Mrs. L. W. Say, and another to Mr. I. G. Strain.

Meeting for Business, May 28, 1844.

VICE PRESIDENT MORTON in the Chair.

Dr. Bridges read a letter from Mr. G. H. Cook, Corresponding Secretary of the Troy (N. Y.) Lyceum of Natural History, dated May 25th, 1844, transmitting the thanks of that Institution for certain duplicate copies of works from the Library of the Academy, presented to it through Dr. Bridges; and expressing a desire to obtain, also, a copy of Harlan's Medical and Physical Researches, and several numbers of the Journal of the Academy.

Whereupon, on motion of Dr. Elwyn, Resolved, That the 2d Part of Vol. VII. and Vol. VIII. of the Journal, and a duplicate copy of Dr. Harlan's work, be presented to the Troy Lyceum of Natural History.

On motion of Mr. Phillips, Resolved, That a copy of "Maclure's Opinions" be presented to Mrs. L. W. Say, on behalf of the late Mr. Maclure.

Mr. Edward Harris exhibited a specimen (a young male) of Cymindis hamatus, Illig., (Rostrhamus hamatus, Mus. A. N. S.) This bird was shot by himself on the 29th of April last, on the Miami river, Cape Florida.

William Darrach, M. D., of Philadelphia, was elected a Member; and

William S. Sullivant, Esq., of Ohio, a Correspondent of the Academy.

Stated Meeting, June 4, 1844.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

A fine collection of Insects from Brazil, comprising 228 Coleoptera, 60 Lepidoptera, and 19 Hemiptera, &c.: also, the following Bird skins from Brazil:

Thamnophilus badius, Swainson; Pachyrhynchus Cuvierii, Spix, ♂ & ♀; Pipra erythrocephala, Linn.; P. strigilata, De Wied.; Calyptura cristata, Vieillot; Pitylus atro-chalybeus, Jard. & Selby; Tanagra ornata, Spix.; T. magna, Gm.; Tachyphonus cristatus, Linn.; T. Vigorsii, Sw.; Aglaia gyrola, Linn.; A. Barbadensis, Briss. Shaw; Nemosia flavicollis, Vieil.; Arremon torquatus, Vieil.; A. semi-torquatus, Sw.; Ramphastos ariel, Vigors; Monassa personata, Vieil.; Trochilus moschitus, Linn.; Cynanthus saphurinus, Linn.

Presented by the following named members: William Hembel, J. Price Wetherill, S. G. Morton, Geo. W. Carpenter, W. S. Vaux, R. Bridges, and W. S. Zantzinger.

Mr. Cassin presented a fine specimen of Murex saxatilis, from Monrovia.

DONATIONS TO LIBRARY.

Histoire Naturelle des Animaux sans vertebres. Par T. B. P. A. Lamarck. Second Edition. Vols. i. and ii., and 1st part of Vol. iii. In exchange.

Report of Captain George W. Hughes, of U. S. Topographical Engineers, relative to working Copper Ore. April, 1844. From Col. Abert.

A letter was read from Dr. Von Martius, in reference to certain publications of the Academy, desired for the Royal Academy of Munich.

Whereupon, on motion Resolved, That such copies of the publications of the Academy, as may be necessary to com-

plete the series of the same in the Library of the Royal Academy of Munich, be forwarded to that Institution.

Mr. Phillips exhibited a number of specimens of Echini, Spatangus, and Galeolites? obtained from Cuba, 30 miles inland, and made some remarks thereon.

Mr. Peter A. Browne announced that exertions were making by himself, and some of his scientific friends in this city, to establish a Zoological Garden in this vicinity; that it had been thought advisable to conduct the same upon the most liberal and popular plan; and that it had been found that it was likely to receive a large share of public patronage. Mr. Browne remarked that, while such places of scientific and moral instruction and amusement were quite common in Europe, there was not, so far as his knowledge extended, any thing of the kind in the United States; and that he would feel gratified that so laudable an example should be set in this city.

Mr. Browne also remarked, that in furtherance of the plan of a Zoological Garden, and in aid of its fund, there were grounds to believe that several patriotic naturalists would consent to deliver, at the ensuing season, lectures upon subjects connected with Zoology, the proceeds to be appropriated entirely to the above object.

Stated Meeting, June 11, 1844.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

The following collection from Cienfuegos, Cuba, presented by Captain H. F. Baker, through Dr. William Blanding, viz: Helix auricoma; Amphidesma ——; Sanguinolaria rugosa; Mactra bilineata; Lucina Jamacensis; Cardium bullatum; Avicula ———; Terebra pica; Bulla striata; Littorina muricata, and other shells; a specimen of Lepto-

podia sagittaria; of Scorpio ———; specimens of Grapsus longimanus? and other crustacea; fruit of Swietenia Mahogani; of an Anona; Guilandina echinata; and numerous specimens of Reptilia in spirits.

DONATIONS TO LIBRARY.

Transactions of the American Philosophical Society, Vol. IX., New Series, Part 1. Philadelphia: 1844. From the Society.

Literarische Sympathien, oder industrielle Buchmacherei; ein beitrag zur geschichte der neuren Englischen Lexicographie. By F. G. Flügel, U. S. Consul at Leipsic. Leipsic: 1843. From the Author.

Mr. Edward Harris deposited in the library the following valuable work: "Nouveau Recueil de Planches Colorees d'Oiseaux." Par C. J. Temminck. 6 vols. 4to.

Proceedings of the Zoological Society of London, from January 8th to December 10th, 1833, inclusive. The series of this work is now complete in the Library. Presented by Mrs. Lucy W. Say, through Mr. Phillips.

A communication was read from the Botanical Society of London, dated 12th of April, 1844, acknowledging the reception of certain numbers of the Society's Proceedings.

Mr. Phillips laid before the Society a number of manuscript descriptions of Insects by the late Mr. Say, transmitted by Mrs. Say, and which are supposed to be unpublished.

On motion of Professor Johnson, the papers were referred to the following gentlemen for examination, with a view to their publication, if considered desirable by them: Mr. Haldeman, Dr. Melsheimer, of Dover, Pennsylvania, and the Rev. Dr. Morris, of Baltimore.

Meeting for Business, June 25, 1844.

VICE PRESIDENT MORTON in the Chair.

The Monthly Report of the Corresponding Secretary was read and adopted.

After the transaction of other business, the Chairman laid before the meeting an extract of a letter from Mr. Alexander Maclure, dated New Harmony, June 13th, 1844, tendering to the Academy the sum of $450, being the difference between $5000, the original amount of a claim on an unsettled estate presented to the Academy by his late brother, William Maclure, and the amount accepted by the Institution from the heirs of the estate in payment of the same.

Whereupon, the following resolution, offered by Professor Johnson, was unanimously adopted :

Resolved, that the thanks of this Society be tendered to Alexander Maclure, Esq., for the prompt and liberal manner in which he has fulfilled the intentions of his late brother in relation to the Hamilton mortgage, and especially for his very opportune settlement of the balance of said account, as announced in his letter read this evening.

John Lord Hayes, Esq., of Portsmouth, New Hampshire, was elected a Correspondent of the Academy.

PROCEEDINGS

OF THE

ACADEMY OF NATURAL SCIENCES

OF PHILADELPHIA.

VOL. II. JULY AND AUGUST, 1844. No. 4.

Stated Meeting, July 2, 1844.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

Head of a fossil Crocodile found in the cretaceous limestone overlying the green sand on the farm of General Irick, near Vincentown, New Jersey. From General Irick, through Wm. E. Whitman, Esq., of Philadelphia.

A model, in clay, of a head taken from the mountains of Huana Capac, Peru, said to be the only one as yet found in the tombs of the Peruvian Kings. Presented by the Hon. Benjamin Tappan, of Ohio.

Specimen of fibrous Plumbago, from Indiana. Presented by Professor Johnson.

Skin of Plotus melanogaster, from Africa. From Dr. William Blanding.

A collection, in spirits, of Reptilia, Insects, &c., from the Island of Trinidad. From Dr. Watson.

Dr. Morton deposited in the Hall of the Society an additional series of his collection of Crania.

DONATIONS TO LIBRARY.

Catologo Metodico degli Uccelli Europei, di Carlo L. Bonaparte, Principe di Canino. Bologna, 1842. From the Author.

Ninth memoir with reference to the Laws of Storms in India, &c. By H. Piddington. Calcutta, 1843. From the Author.

An Inquiry into the distinctive characteristics of the Aboriginal Race of America. By S. G. Morton, M. D., 2d Ed., Philadelphia, 1844. From the Author.

Travels in the Interior of North America. By Maximilian, Prince de Wied. Translated from the German by H. Evans Lloyd. Folio, pp. 520, London, 1843. From Prince de Wied.

Also, from the same, an Atlas, imperial folio size, containing forty-eight splendid engravings, intended as an accompaniment and illustration of the Work.

Letters were read,

From Mr. F. Markoe, Corresponding Secretary of the National Institute, acknowledging the receipt of No. 2, Vol. 2d, of Proceedings of the Academy.

From Mr. G. H. Cook, Corresponding Secretary of the Troy Lyceum of Natural History, dated June 18, 1844, returning the thanks of that Institution for a recent donation of Books from the Academy, and offering in exchange duplicates of specimens of Natural History from its Cabinet, especially Shells and Reptilia.

From Maximilian, Prince de Wied, dated Nieu-Wied on the Rhine, Jan. 20, 1844, accompanying the donation of his splendid work, announced above.

From Mr. Frederick Schuchardt, dated New York, June 19, 1844, also in reference to the same work, it having been consigned to his care by the Author.

From Hon. Benj. Tappan, dated Washington, June 17, 1844, in reference to his donation of this evening.

Dr. Morton (Mr. Pearsall in the chair,) then proceeded to make some remarks on the head of the fossil Crocodile presented this evening, and stated that he believed it to be the largest and most perfect head of the kind yet found in this

country, and that, from the length of the snout, it belonged to the Gavials of Cuvier. The head, when found, was enveloped in solid limestone, which had been completely removed by a sculptor. Dr. Morton also pointed out the distinction between the fossil and the Gavials from the Ganges and Orinoco. The dimensions of this head, and other particulars relating to it, will be fully given at a subsequent meeting.

Prof. Johnson called the attention of the Society to the high conducting power for heat possessed by the fibrous plumbago, presented this evening, transmitting caloric quite as rapidly as a slip of metal.

Prof. Johnson offered the following Resolutions which were unanimously agreed to.

Resolved, That the thanks of this Academy be presented to Maximilian, Prince de Wied, for the donation of a copy of his splendid work, entitled, 'Travels in North America,' this evening received.

Resolved, That the thanks of the Academy be presented to General Irick, for the valuable donation of the head of a fossil crocodile from New Jersey, which has this evening been presented.

Stated Meeting, July 16, 1844.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

Skin of Felis concolor, of very large size, from the upper Missouri. Presented by Owen Evans, Esq., of Philadelphia.

Specimen of Plumbago mica from Saybrook, Connecticut. From James W. Kendall.

DONATIONS TO LIBRARY.

Memorial to the Legislature of Massachusetts on the subject of the Insane. By Miss D. L. Dix, Boston, 1843. From the Author.

Memoir on the scientific character and researches of the late James Smithson, Esq. By Walter R. Johnson. Philadelphia, 1844. From the Author.

Prof. Johnson made some remarks on the specimen of Plumbago mica presented this evening, and on the comparative characteristics of other varieties of Plumbago from various localities, and as an artificial product, all of which were exhibited.

The specimens of Plumbago from Saybrook occur in felspar, associated with, and passing directly into dark brown mica. Indeed so intimate is the union of these two minerals, that in several instances the folia are mica on one edge, and plumbago on the other. It is in some cases difficult to determine where the micaceous character begins and where the plumbaginous ends. The mass has, with the exception of possessing a crystalline form, much the aspect of some samples of furnace cinder from anthracite iron works which have fallen under Prof. J.'s notice, and which exhibited large foliated portions of keech or artificial plumbago, passing into a greyish shining, silicious mass of nearly the same colour as the brown mica which accompanies the plumbago of Saybrook.

The only mineral with which plumbago is liable to be confounded by the casual observer, is sulphuret of Molybdenum—this mineral is likewise represented by authors to occur in or near Saybrook. A specimen of the sulphuret of Molybdenum which Prof. Johnson had tried, possessed a specific gravity of 4.6676. A specimen of fibrous plumbago presented at the last meeting, (probably from Ceylon,) had a specific gravity of 2.200; a fragment of the plumbago from Saybrook 2.353; a specimen of plumbago from Russia 2.227; and a mass of plumbaginous deposite from the interior of a gas retort, derived probably from the decomposition of bicarburetted hydrogen, had a specific gravity of 1.957. The relation between the several specimens of plumbago and their contrast with the sulphuret of molybdenum, are sufficiently indicative of the true nature of the specimen this evening presented. The peculiar silvery colour, and the greenish streak of the sulphuret were also referred to and exhibited in contrast with the darker grey colour, and the similarly

tinted streak of plumbago as conclusively fixing the character of the specimens under consideration.

The occurrence of plumbago in numerous localities associated with coal, was alluded to, and the fact was noticed, that in these cases the beds of altered or *graphitized* coal, are generally in close proximity with igneous rocks.

This natural conversion of coal into plumbago, with the artificial production of it in the iron furnace, the gas retort and other similar situations, together with its existence in primary rocks, or in the fissures of adjacent sedimentary rocks, appear to point to a common origin of the material in all these cases.

Prof. J. proposed to give at a future meeting some further illustrations of the subject.

Resolutions were adopted, accepting a proposal from Dr. Morton to purchase from the Academy for a proper consideration, the remaining half of the range of cases in the South flying-gallery, for the purpose of accommodating an additional portion of his collection of Crania—and also authorising the Curators to have erected forthwith, a similar range of cases for books in the North flying-gallery.

Stated Meeting, July 23, 1844.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

Two finely prepared specimens of Rana ——, from the Island of Dominica. Presented by Mr. Wm. L. Bispham, of Philadelphia.

Leaves and seed-vessels of Alpinia nutans, and a portion of the milky juice of the Galactodendron utile, or Cow-tree of South America. Presented by Miss Percival, of Philadelphia.

DONATIONS TO LIBRARY.

A Geological Map of the Western States; and a concise description of the Geological formations, &c., of the Western States, designed as a Key to the Map. By Byrem Lawrence. From Dr. Morton.

Map (No. 3) of the boundary lines between the United States and the adjacent British provinces, &c. Compiled by Lieut. T. I. Lee & W. M. C. Fairfax, under the direction of Major J. D. Graham, U. S. Topog. Eng. From Major Graham.

The Chairman read a portion of a letter from Richard Kippist, Esq., Librarian of the Linnean Society of London dated May 29, 1844, requesting specimens of seeds and seed vessels of this country. Referred to the Botanical Committee.

Mr. Geo. R. Gliddon read some extracts from a letter dated Khàrtoon, (1600 miles up the Nile, at the junction of the White and Blue Rivers,) 22d and 26th March, 1844, addressed by Mr. Abeken (the friend and 'compagnon de voyage,' of Dr. Lepsius,) to Joseph Bonomi, Esq., at Cairo, and by this last gentleman communicated to Mr. Gliddon at Philadelphia.

After describing the Journey and proceedings of the Prussian Scientific Mission, from their departure from *Korosko* (Lower Nubia) on the 8th January, to the return to Khàrtoon of Dr. Lepsius and himself, from their excursion into the province of Sennaár along the Blue Nile, as far as the 13th degree of North Latitude, Mr. Abeken says, in regard to the Monuments and *Pyramids* on the Island of *Meroë:*

"Thus the fabulous antiquity of Meroë has dwindled away! I dare affirm, that, on the whole Island or Peninsula of Meroë, there is not one vestige of remote antiquity; and, for my own part, I have no doubt, that Æthiopia received its religion, literature and civilization entirely from Egypt; and *that* even at a comparatively late time. We are anxious to see the works of *Tirkaka* (3d King of the Ethiopian, or *Cush*-ite Dynasty—the XXV. Dynasty of Manetho—B. C. 695—see *Rosellini's* chronology in *Gliddon's* Ancient Egypt,) at Gebel Barkal; and to try whether, perhaps, we can make out a connecting link between him and the later Æthiopians of Meroë."

Meeting for Business, July 30, 1844.

VICE PRESIDENT MORTON in the Chair.

The Report of the Corresponding Secretary having been read and adopted, and some other business transacted, the Society proceeded to ballot for members—when

Mr. C. M. Blake, of Philadelphia,

was announced duly elected.

Stated Meeting, August 6, 1844.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO LIBRARY.

The probable influence of Icebergs upon Drift. By John L. Hayes. Read before the Association of American Geologists and Naturalists, May 4, 1843. From the Author.

The American Journal of Science and Arts. No. 1, Vol. 47. July, 1844. From the Editors.

Seventh Annual Report of the Egyptian Society, read 31st March, 1843. From Geo. R. Gliddon, Esq.

A letter was read from Mr. John L. Hayes, dated Portsmouth, N. H., July 26, 1844, acknowledging the receipt of his notice of election as a correspondent.

A communication from the London Botanical Society, dated 7th June, 1844, transmitting the thanks of the Society for No. 1, Vol. 2d, of the Proceedings.

A paper by Dr. Melsheimer, of Dover, Pa., intended for publication, being a continuation of his descriptions of North American Coleoptera, was read and referred to the following committee:

Dr. B. H. Coates, Dr. M'Murtrie, and Mr. Markland.

Dr. Zantzinger called the attention of the Society to the specimen of milky fluid or juice derved from the Cow tree of S. America, which had been presented at the last stated meeting by a lady of this city. As this was a substance of peculiar interest, and the opportunity of obtaining or of seeing it here very rarely occurred, he stated that he had, on these accounts, been induced to collect from various sources some information relating to it, which he would now present to the Society. Most of the facts had been obtained from Curtis' Botanical Magazine, Vol. 13, new series.

The tree affording this milk is a native of Venezuela, and was first discovered by Humboldt in the year 1802, and was believed by him to be peculiar to the Corderilla of the shore, between a plantation called Barbula and the Lake of Maracaybo, a district of country extending from the 65th to the 71st degree W. Longitude, and from the 9th to the 11th degree N. Latitude. It grows in situations elevated probably from 3000 to 4000 feet above the level of the sea, and in a temperature of which the annual mean is from 65° to 70°. It is called by the natives Palo de Vaca, and is highly prized by them.

The botanical character of this plant is not yet accurately determined. Its flowers having never been seen by botanists, the class and order to which it belongs cannot therefore be ascertained. The fruit is known, and has been figured and described. By some it has been considered as a species of Brosimum, by others as belonging to the natural family Sapoteæ; but it is now generally regarded as a new genus, to which the name Galactodendron, originally suggested by Humboldt, has been applied. Its generic characters are given by Kunth, in his 'Synopsis Plant. Æquinoc.' He places it among the Urticeæ, and has called it *Galactodendron utile*. The fruit is a monosperm, contained in a green covering or rind, and as represented in Curtis' Botanical Magaziue, is not unlike in size and shape the fruit of the Hickory or Walnut.

Humboldt's description of this tree is to be found in his 'Relation Historique,' Vol. 2. He states that, while on his route, for some weeks he had heard much of a tree called the Cow tree, whose juice is a nourishing milk, and that the natives, regarding it as such, consumed large quantities of it. This was to him an extraordinary fact, as almost all lactescent vegetable fluids are unpalatable, and more or less poisonous.

He found, however, that the statements he had received were not

exaggerated, as he had subsequently ample opportunities of judging from trials made of it himself. He says: "It was a gluey and thickish milk, destitute of acridity and exhaling a very agreeable balsamic odour. It was offered to us in calabashes, and though we drank large quantities of it, both at night before going to bed, and again early in the morning, we experienced no uncomfortable effects." The viscidity of this milk was the chief objection to it. The natives and slaves used it freely, and became visibly fatter during the season when the Palo de Vaca yields most milk.

Other naturalists and travellers have since confirmed these statements of Humboldt. He also says: "none of the wonders of these tropical regions so rivetted my gaze as did this tree, growing on the sides of rocks, its thick roots scarcely penetrating the stony soil, and unmoistened for many months in the year by a drop of dew or rain. But dry and dead as the branches appear, if you pierce the trunk, a sweet and nutritive milk flows forth, which is in greatest profusion at day-break. At this time the blacks and other natives of the vicinity hasten from all quarters, furnished with large vessels to catch the milk, which thickens and turns yellow on the surface. Some drink it on the spot, others carry it home to their children, and you might fancy you saw the family of a cow-herd gathering around him and receiving from him the produce of his kine."*

Sir Robert Ker Porter, British consul at Laguayra, at the request of Sir Wm. Hooker, visited in the month of May, 1837, the region where the Palo de Vaca is found. Accompanied by some of the natives, with great difficulty and fatigue, and through a dense and untravelled forest, and at an elevation which he supposed to be 4000 feet above the level of the sea, he reached a group of these trees, and at once made an incision into one of them, 'from which flowed the milk, white and limpid as that of the cow, sweet to the palate, and accompanied by an aromatic smell, but leaving a clamminess upon the lips, and upon the tongue a slight bitter.' He was enabled in a short time to obtain a considerable quantity, although less than was usual, as his visit was made during the decrease of the moon, when this fluid is said not to be so abundant as during its increase.

The trunks of the trees seen by him measured in some instances 20 feet in circumference, and had attained an altitude of at least an

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*Curtis' Botan. Mag. Vol. 13, new series.

hundred feet. The trunk frequently rose sixty feet before it branched; the branches spread on each side 25 or 30 feet, and from 30 to 40 feet higher. They were densely clothed with foliage of a rich and velvety green colour. The leaves measured from 10 to 16 inches in length, and 2 to 4 inches in breadth. The wood was white, hard and very close grained, and the bark of the larger branches was of a yellowish colour.*

An analysis of the milk of the Palo de Vaca, was made in the year 1823 by MM. Rivero and Boussingault, and published in the 23d vol. of the Annales de Chimie, of which the following is a summary:

This vegetable milk possesses the same physical properties as that of the cow, except in being rather viscid: but in chemical properties it materially differs.

It mixes readily with water in all proportions, is not curdled by acids, and is rendered more liquid by ammonia, which latter character shows the absence of caoutchouc—alcohol slightly coagulates it. When fresh it slightly reddens turnsol. At the temperature of 100° Cent. it boils. When slightly coagulated by alcohol, the more liquid portion may be passed through a filter. This when evaporated to the consistence of a syrup and treated with rectified alcohol, developes a little sugar, but the greater part is insoluble. The insoluble portion has a bitter taste, and by chemical manipulation may be made to yield a salt of a magnesian character.

Under the action of heat, the milk of the Palo de Vaca presents at first the same phenomena as that of the cow. A pellicle is quickly formed on the surface, which prevents the disengagement of aqueous vapour. Upon the pellicle being raised as fast as formed, and the evaporation continued carefully at a moderate heat, oily drops begin to form; these increase in proportion as the water is driven off, and at length unite into an *oily liquid*, in which floats a *fibrous substance* which shrivels up according as the temperature of the oil increases. By proper measures the oily matter may be converted into a substance of a yellowish white colour, solid, translucent, resisting pressure, insoluble in water, soluble in hot alcohol and in the essential oils, &c., and in fact resembling refined bees-wax, and applicable to the same purposes.

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* Curtis' Botan. Mag., Vol. 13, new series.

The *fibrous substance* is of a brown colour, and without taste; upon a hot iron it swells, then becomes shrivelled and carbonised, giving out an odour like that of broiled meat. Other experiments with this fibrous matter showed its close similarity to animal fibre.

The constituents of the milk of the Cow tree, as ascertained by MM. Rivero and Boussingault, are therefore, 1st, wax: 2d, fibrine: 3d, a little sugar: 4th, a magnesian salt: and 5th, water.

Another analysis has been made by the celebrated Mr. Thomson, and published in his Vegetable Chemistry. He regards the substance called fibrous by Rivero and Boussingault as having many characters similar to those of cork. He also discovered in it a new substance which he called *Galactine*, obtained by evaporating the milk to dryness by a gentle heat, and digesting the residue in hot alcohol. Upon the solution cooling, an abundance of snow white flakes are deposited, which constitute the Galactine, of which he gives the ultimate analysis.

The specimen on the table is a portion of some brought by the Brig Caraccas, Capt. Dill, which sailed from Porto Cabello on the 2d July last. It was furnished at the request of a gentleman of this city, by a resident of Porto Cabello. The bottle in which it was sent, contained about a pint, and was labelled 'Leche Palo de Vaca;' and the letter accompanying it, gave some particulars respecting the mode in which it was obtained.

The long period which has elapsed since it was taken from the tree, has necessarily occasioned an alteration in some of its sensible properties.

In colour and consistence it can scarcely be distinguished from ordinary milk; but the smell resembles that of sour or stale cheese, and the taste is not of course agreeable. If allowed to remain undisturbed for some time, it separates spontaneously into two portions; an upper and by far the largest portion, which is thick and viscid, and a thinner one below, which is transparent, of a greenish yellow colour, and very like the whey of ordinary milk. When exposed to the air, it quickly thickens and becomes of a dark colour.

Dr. Z. stated that he hoped to have an opportunity to exhibit at a future period, specimens of the fruit, leaves, and probably the flowers of this interesting plant; as he had been kindly promised by the gentleman alluded to above, that every effort should be made to obtain them for the Academy.

Stated Meeting, August 20, 1844.

VICE PRESIDENT MORTON in the Chair.

A paper by Dr. Hallowell, intended for publication, entitled "Descriptions of new species of African Reptiles," was read and referred to the following committee: Dr. Holbrook, Dr. William Blanding, and Rev. J. H. McFarland.

Dr. Morton read a "Description of the head of a Fossil Crocodile from the cretaceous strata of New Jersey," which being intended for publication, was referred to a committee, as follows: Mr. Conrad, Mr. R. C. Taylor, and Dr. Holbrook.

Two communications from the American Philosophical Society, dated 21st June and 19th of July, 1844, returning the thanks of the Society for recent numbers of the Academy's Proceedings.

Meeting for Business, August 27, 1844.

VICE PRESIDENT MORTON in the Chair.

The Committee, to whom was referred the following paper read at last meeting, reported in favour of publication.

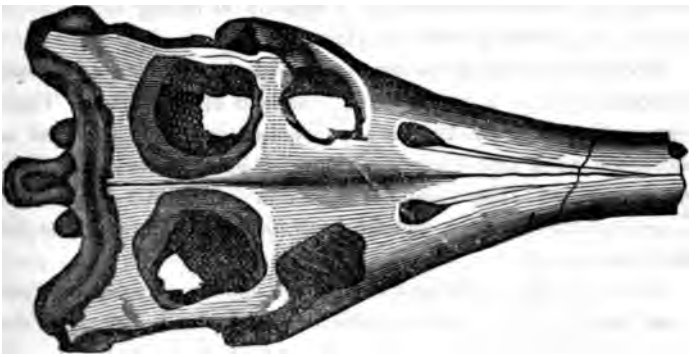
Description of the Head of a Fossil Crocodile from the Cretaceous strata of New Jersey.

By SAMUEL GEORGE MORTON, M. D.

Read Aug. 20, 1844.

CROCODILUS (GAVIALIS?) *clavirostris.*

Skull very broad posteriorly, whence it tapers in a gradual and triangular manner to a narrow, elongated snout. Orbits very large, oblique, and with but slight marginal elevation. Temporal fossæ of great size, and the spiracles? placed immediately below and before the inner margin of the orbit. Length of the head from the superior margin of the occiput to the broken end of the snout 23 inches: width of the occiput behind, 12½ inches; lateral diameter of orbit 3½ inches; lateral diameter of temporal fossæ 4½ inches. Remaining teeth 13 on each side. Lateral diameter of terminal end of the snout 3¼ inches.



This species is wholly unlike any other, fossil or recent, with which I have been able to compare it. It seems to form an intermediate link between the Gavials and true Crocodiles, for the snout, though long and narrow, is gradually and not abruptly produced from the head, and has probably been from eight to twelve inches longer than it now is.

This remarkably large and admirably preserved relic was found in the cretaceous limestone which overlies the ferruginous marl near Vincentown, in New Jersey, and has been obligingly presented to our Institution by General William Irick (on whose farm it was discovered,) and William Whitman, Esq., of this city. These strata of cretaceous limestoue were first discovered and announced by me in 1829; in which year I published an account of them, with a list of their organic remains, as observed at Timber creek, in Gloucester county.* Since that period I have continued my researches into this interesting section of our geology, which I have subsequently identified in two other localities in New Jersey, viz. Vincentown and the vicinity of Salem, and also in South Carolina west of Charleston; at which latter place the fossils have been chiefly collected by Dr. Ravenel, who is preparing for publication a description of several species hitherto unknown.

I obtained from Timber creek at my first visit, a fragment of the jaw of a Crocodile with three teeth; but the parts were not sufficiently perfect to enable me to decide to which division of this class of animals it pertained. Upon comparing it, however, with the spe-

* Vide Journal of the Acad. N. S., vol. VI.

cimen now under consideration, it appears to belong to a Gavial, and in all probability to the *G. clavirostris*.

Dr. Harlan, many years ago, described the remains of a fossil crocodile from the lower or ferruginous beds of this series.* These fragments enabled Dr. Harlan to reconstruct the head so far as to identify it as a true crocodile, to which he gave the name of C. *macrorhyncus*.† This species is figured in the fourth volume of the Journal of the Academy, and the fossil itself is preserved in the Society's collection.

During Mr. Lyell's recent visit to this country, he also obtained some fragments of a fossil crocodile which appear to belong to the Procælian division of this family.‡

Prof. Buckland remarks that "as there were scarcely any mammalia during the secondary periods, whilst the waters were abundantly stored with fishes, we might, *à priori*, expect that if any crocodilean forms had then existed, they would most nearly have resembled the modern Gavial. And we have hitherto found only those genera which have elongated beaks in formations anterior to, and including the chalk; whilst true crocodiles, with a short and broad snout, like that of the cayman and alligator, appear for the first time in strata of the tertiary periods, in which the remains of mammalia abound.

This remark would seem to conflict, in a geological sense, with the observations of Dr. Harlan, as just quoted, because his description and figure correspond to those of a true crocodile; while the *C. clavirostris* seems, as we have remarked, to possess an intermediate organic structure.

M. Geoffroy St. Hiliare has divided the fossil Gavials into two genera, viz: *Teleosaurus* and *Steneosaurus*, which chiefly differ from each other in the position and form of the anterior termination of the nasal canal. As the terminal portion of the snout of the present specimen has not been discovered, we cannot avail ourselves of this generic distinction; and this uncertainty must continue until the recovery of the deficient portion may enable us to decide the question.

* Journal of the Acad N. S. Vol. IV.

† Medical and Physical Researches, p. 369.

‡ Amer. Journal of Science, Vol. XLVII., p. 214.

§ Bridgewater Treatise, Vol. I. 251.

The following list embraces all the organic remains hitherto discovered in New Jersey, in the same strata with the *Crocodilus clavirostris:* they are described in the sixth and eighth volumes of the Society's Journal.

SQUALUS, several species: BELEMNITES? *ambiguus*, (M.); PLANULARIA *cuneata*, (M.); Nautilus Dekayi? (M.); Scalaria annulata, (M.); Cirrus crotaloides, (M.); Vermetus rotula, (M.); Gryphæa vomer, (M.); Gryphæa convexa, (Say.); Pinna rostriformis, (M.); Teredo tibialis, (M.); Cidarites diatretum, (M.); Cidaretes armiger, (M.); Nucleolites crucifer, (M.); Ananchytes cinctus, (M.); Ananchytes fimbriatus, (M.); Flustra sagena, (M.); Eschara digitata, (M.); Retepora ——, fragments; Anthophyllum atlanticum, (M.); Alveolites cepularis, (M.); Alcyonium ——.

ELECTION.

Richard K. Haight, Esq., of New York, was elected a Correspondent, and

James Dundas, Esq., of Philadelphia, a member of the Academy.

PROCEEDINGS

OF THE

ACADEMY OF NATURAL SCIENCES

OF PHILADELPHIA.

VOL. II. SEPT. AND OCT. 1845. No. 5.

Stated Meeting, Sept. 3, 1844.

Vice President MORTON in the Chair.

DONATIONS TO MUSEUM.

Specimen, in spirits, of Echeneis ———, from Long Branch New Jersey. Presented by Mr. James Dundas.

Ninety-two specimens of N. American Lepidopterous insects. In exchange.

A small collection of minerals. From Mr. J. Clark, of St. Louis, Missouri.

Three crania, supposed to be of the Yemassee tribe of Indians: obtained from a mound near Tampa, Florida, by Dr. Holmes, U. S. A., and deposited by Dr. Morton.

DONATIONS TO LIBRARY.

Geology of New York. Part IV: containing the survey of the 4th Geological district. By James Hall. Albany, 1844. 4to. pp. 525. From the Author.

Zoologie analytique, ou Methode Naturelle de Classification des Animaux: par M. Dumeril. Paris, 1806. From Mr. Haldeman, in exchange.

The American Monthly Magazine and Critical Review. Vol. 1, for 1817; containing several original papers by the late Prof. Rafinesque. From the same, in exchange.

Description of Shells from the Province of Tavoy in British Burmah, and Descriptions and Notices of some of the Land Shells of Cuba. By Aug. A. Gould, M. D. From the Author.

Letters were read from Prof. James Hall, dated Albany, N. Y., August 29, 1844, and from Mr. Wm. S. Sullivant, of Columbus, Ohio, severally acknowledging the reception of their notices of election as Correspondents of the Academy.

Stated Meeting, September 17, 1844.

Vice President MORTON in the Chair.

DONATIONS TO MUSEUM.

Fine specimens of Fibrous Sulphate of Lime, from the Mammoth Cave Kentucky, and native Sulphate of Magnesia, from the same. Also, Quarts Crystals of large size, from Little Falls. Presented by Mr. Samuel Ashmead.

Selenite, from the interior of the Pyramid of Cheops; and a portion of effloresced salt from the surface of the Desert of Mount Sinai. Presented by Professor Durbin, of Carlisle, Pennsylvania.

Specimens of the Rocks from the summit, and of those from the notch of the White Mountains of New Hampshire, and from the summit of North Mountain, in Camptown, New Hampshire. From Professor Johnson.

An Address on the recent progress of Geological research in the United States; delivered at the 5th Annual Meeting of the Association of American Geologists and Naturalists, held at Washington City, May, 1844. By Henry D. Rogers. Philadelphia, 1844. From the Author.

Report of the Commissioners appointed by the Secretary of

the Navy to examine the several plans of floating docks submitted to the Department. From Prof. Johnson.

Boston Journal of Natural History. Vol. 4. No. 4. From the Boston Society of Natural History.

A letter was read from Mr. Haldeman, dated August 19, 1844, accompanying a series of letters addressed by the late Mr. Say to the late Rev. J. F. Melsheimer, and presented to the Academy by his brother, Dr. F. E. Melsheimer. Also a paper by the latter, containing additional descriptions of N. American Coleoptera; which on motion was referred to the committee appointed on his former paper, read August 6th last.

Professor Johnson then offered some remarks on the specimens of rocks presented by him this evening.

Those from the summit of Mount Washington are quartz, coarse granite, and tourmaline, with quartz filling its fissures, and plates of mica adhering to its crystals. Those from the northwestern slope of the same mountain are hornblende, and tabular masses of a micaceous rock, in which the folia are laid in narrow bands obliquely inclined to each other. All these materials are very durable in their nature, and suffer little from mere atmospheric influence. In strong contrast with these are many of the rocks found at the White mountain *notch*. The latter are generally more or less friable in their nature, and liable to pretty rapid detrition. They consist of beds of gneiss, intermixed with others of a granitoid character, having the aspect and constituents of granite, but the looseness, and friability of gneiss which has been long exposed to the weather. The hardest specimens obtained from that part of the notch which contains the celebrated Willey house, are mixtures of quartz and serpentine.

A portion of the masses having a granitic aspect has since the catastrophe which happened to the Willey family about 18 years ago, become completely disintegrated, and fallen into small granules.

The event just alluded to seems to furnish, to a considerable ex-

tent at least, a solution of the present aspect, if not of the very existence of this notch. The numerous and extensive scars which the mountain still bears, derived from that occurrence, with others obviously produced by similar means but of a more ancient date, and not in the notch only, but also in the numerous recesses all along this mountain chain, point significantly to the causes which, through innumerable ages, have been operating upon the gradual degradation of the softer portions of these elevated regions. The notch is stated to be, at its highest part, about 2000 feet above the level of tide water. For the first few miles the decent is very rapid, and the head of the Saco is truly a mountain torrent. This steep acclivity favors the rapid action of water in washing down the looser portions of the rock formation—aided as it is by the alternate wetting and drying of the rocks.

The Chairman announced to the Society the decease, on the 5th September last, of Miss Anna Maclure, at the residence of her brother Alexander Maclure, Esq., at New Harmony, Indiana. The zeal with which this lady, in common with her brother, has ever promoted the objects and interests of this Institution, will indissolubly connect her name with its past and future history, as one of its earnest friends and liberal benefactors.

On motion of Professor Johnson, the letters of the late Rev. Mr. Melsheimer, presented to the Academy this evening, were referred to the Library Committee, with directions to have them bound and placed in the Library.

Meeting for Business, September 24, 1844.

Vice-President MORTON in the chair.

After some preparatory business, the Society went into an election for members and correspondents, with the following result:

MEMBER.

John Frost, LL. D., of Philadelphia.

CORRESPONDENT.

Lewis R. Gibbes, M. D., of Charleston, South Carolina.

Stated Meeting, October 1, 1844.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

Mounted specimens of Scotophilus perlatus, Sw., Falco ———, and Buteo ———, from South Africa. Presented by Dr. Watson.

Skin of an Ichneumon, from Liberia. From Dr. William Blanding.

Tantalus melanops, Trochiles vesper, Agelaius ———, Euphonia musica, and Tyrannus cinereus, L. Presented by Mr. Cassin.

Large specimen of Coral, from the Indian Ocean. Presented by Mr. Frederick Graff, of Philadelphia, through Mr. W. S. Vaux.

An analysis, by Prof. Reid, of three Sulphur Springs at Sharon, Scoharie county, N. Y., was referred to a committee, consisting of Professor Johnson, Dr. Bridges, and Dr. B. H. Coates.

Prof. Johnson read the following communication from Prof. Espy.

Philadelphia, Sept. 22d, 1844.

DEAR SIR,—I send you an extract of a letter which I have lately received, which is only one of many in my possession, going to prove that rain may be produced by man in time of drought.

"DEAR SIR,—The undersigned citizens of Coudersport, Pa., and vicinity, desirous of rendering you what little aid they possibly can, beg leave to present to you their testimonial of the following facts.

On Saturday the 13th of July, about one o'clock, the fallow of D. F. Ellsworth, Esq., containing about six acres, was fired. At the time the fire was set, the day was calm and warm, and would be considered clear; there were some flying clouds, with slight appearance of rain to the North, but none in our neighborhood. The fire spread rapidly and burned with great violence.

In a short time, a white cloud was seen to form over the black smoke, which rose over the fire with great rapidity, nearly perpendicular. The white cloud rolled outwards above, especially towards the North and South, and probably towards the East as the wind was gentle in that direction, and as the rain which fell from it increased as it proceeded East, as far as heard from. It did not swell out far towards the West. In less than an hour from the commencement of the burning, very large drops of rain were seen descending by many inhabitants of Coudersport from the cloud, glittering in the sun like diamonds.

It rained but little in Coudersport, which is about one hundred rods west of the fire, and none at all one half mile west of the village.

This latter fact was remarked particularly by Charles Lyman, who was ten miles west of Coudersport, at the time of the burning, and who found the road very dusty until he came within a few rods of the village, when the first edge of the shower made its appearance. Mr. Lyman lives two miles east of Coudersport and he found the quantity of rain which had fallen constantly increased as he advanced. When he got home he found the ground, quite wet; previous to the rain it was quite dry and parched, suffering much for want of rain.

Samuel Taggart lives six miles east of the fire, and at his place the shower was very violent, and lasted about thirty minutes. Some of our citizens watched the whole formation of the cloud and its gradual recession towards the East after the rain, and we have understood from credible authority that it rained hard and much longer many miles to the East the same afternoon.

We are unanimously of the opinion that the rain was produced by the burning of the fallow, and we think it due to your zeal in the cause of science to make this communication to you.

Yours,

JOHN S. MANN, Att. at Law.
CHARLES LYMAN,
W. C. BUTTERWORTH, Att. at Law.
SAMUEL TAGGART,
JOHN B. PRADT, Epis. Clergyman,
DAVID T. HALL.

To Prof. Espy. *Coudersport*, Pa., July 27, 1844."

I take an early opportunity of making the above communication to you, knowing that you take an interest in the subject.

Yours truly,
JAMES P. ESPY.

Professor W. R. Johnson.

A letter was read from Dr. Lewis R. Gibbes, acknowledging the reception of his notice of election as a Correspondent.

Stated Meeting, October 8, 1844.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

Specimen of the Sugar Cane in flower, from St. Croix. From Peter A. Browne, Esq.

Mr. Kilvington presented a specimen of (a spike in fruit) Ricinus armatus, from the West Indies.

Specimen of Scops Senegalensis, Sw. From Dr. Watson.

DONATIONS TO LIBRARY.

Almanac for 1844, of the Royal Bavarian Academy of Sciences. From the Academy.

Catalogue of the Library of West Point Academy. New York, 1830. From Dr. Elwyn.

Notes on Northern Africa, the Sahara and Soudan. By Wm. B. Hodgson. New York, 1844. From the Author.

Dr. Morton made a communication to the Society on a second series of ancient Egyptian Crania obtained from tombs around the Pyramids of Ghezeh. He proposed to continue his remarks, and to present the whole in a written form at a future meeting.

Stated Meeting, October 15, 1844.

VICE PRESIDENT MORTON in the chair.

DONATIONS TO MUSEUM.

The following minerals were presented by Mr. H. S. Stephens.

Aventurine Felspar,
White and green do.
Bronze Sapphire,
Andalusite, and
Tourmaline.
} From Delaware County, Pennsylvania.

Green Malachite and Fibrous do., from Berks County.

Dodecahedral Iron, do.

Moss Agate, from Lancaster County.

Red Oxide of Titanium, from Chester County.

Picrolite, from Cecil County, Maryland.

Mr. Cassin presented the following Bird skins, from Western Africa.

Prionops plumatus, Shaw. — Euplectes ignicolor, Vieil.
Pogonias sulcirostris, Leach. — Spermestes culcullata, Sw.
Lamprotornis ptilorhynchus, Sw. — Vidua chrysonota, Sw.
Also, Merula rubripes, Vigors, from Cuba.

Dr. Morton deposited seventeen ancient Egyptian Crania, being the series referred to in his communication made to the Society at the last meeting; also a skull of Crocodilus vulgaris, from the Nile.

A communication was read from Mr. J. H. Redfield, Corresponding Secretary of the New York Lyceum of Natural History, dated October, 1844, acknowledging the receipt of the last number of the Proceedings.

Dr. Morton submitted in writing his "Observations on a second series of Ancient Egyptian Crania," which were, on motion, referred to the following committee: Prof. Johnson, Dr. Elwyn and Mr. Hodgson.

Stated Meeting, October 22, 1844.

Vice President Morton in the Chair.

DONATIONS TO MUSEUM.

Skins of Buteo Jackal LeVail, and Falco peregrinoides, Temm. from South Africa. Presented by Dr. Watson.

Mounted specimen of Rallus noveboracensis, from the vicinity of Philadelphia. Presented by Dr. Zantzinger.

Water obtained in 1841, from the Artesian Well near Paris, 1750 feet in depth. From Mr. Isaac Collins.

DONATIONS TO LIBRARY.

Annales des mines, Quatrième Serie, Tome IV. Liv. 5 et 6 de 1843; and Tome V. Liv. I. de 1844. In exchange.

Two Lectures on the Natural History of the Caucasian and Negro races. By Josiah C. Nott, M. D. Mobile, 1844. From Dr. Morton.

Prof. Johnson read a portion of a paper entitled, "On the methods of determining the calorific powers of combustible bodies;" the remainder of which he proposes to give to the Society at a future meeting.

An invitation was read from the American Philosophical Society to the Academy, to be present on the 25th inst., at the Musical Fund Hall, at the delivery of a discourse commemorative of the late President of that Society, P. S. Duponceau, Esq., LL. D., which was on motion accepted.

Dr. Bridges offered the following resolution, which was, on motion, adopted.

Resolved, That a copy of Dr. Harlan's Medical and Physical Researches, be presented in the name of the late Wm. Maclure, Esq., to the Georgia Historical Society, at Savannah.

Meeting for Business, October 25, 1845.

Vice President MORTON in the Chair.

The Committee to whom was referred a paper by Dr. Ravenel, read May 7th, 1844, reported in favor of publication.

Description of some new species of Fossil Organic remains, from the Eocene of South Carolina. By EDMUND RAVENEL, M. D. of Charleston, S. C.*

GENUS PECTEN.

1. *Pecten Mortoni.* Specific character—Orbicular, thin, both valves moderately convex, one more so than the other—outside, with numerous concentric obsolete striæ; inside, with from eighteen to twenty-four radiating double ribs, slightly elevated; ears large, sub-equal, striated externally.

This species is nearly allied to the P. *pleuronectus* and P. *japonicus.* It is found in the limestone on my plantation, *The Grove*, in St. Thomas's Parish, about 17 miles from Charleston, and also on Goose creek, at Mr. Henry Smith's, about 7 miles South West from the Grove deposite, and 11 miles from Charleston; Cooper River being between these two localities.

This shell is abundant at the *Grove*, but being large and thin, it is generally broken in getting out the marl, and with the exception of a few small specimens, I have not been able to procure a perfect valve.

The largest specimen in my possession although not perfect, is sufficiently so to determine its size; it is $8\frac{3}{4}$ inches in diameter.

I take much pleasure in designating this shell by the name of our distinguished Geologist, Dr. Samuel George Morton, of Philada.

2. *Pecten Holbrookii.* Specific character.—Orbicular, convex with twenty-three large, prominent, somewhat flattened ribs, smooth, margin strongly dentate; ears large, nearly equal, obscurely ribbed, within deeply channeled on the hinge margin; cavity of the ligament triangular, deep. Transverse diameter $5\frac{1}{4}$ inches, longitudinal diameter $4\frac{3}{4}$ inches.

Detached valves only have fallen into my hands. It occurs in my

* It is designed to give wood-cuts of these interesting species in a future number.

own marl pits, at the *Grove*, with the P. *Mortoni*, but more rarely. I have fragments of larger specimens than the one described; from these fragments it is probable that both valves are convex, one a little more so than the other.

I have dedicated this species to our learned herpetologist, Professor Holbrook, of Charleston, S. C.

Genus TEREBRATULA.

Terebratula canipes. Specific character. Larger valve, pear-shaped, convex; beak rather large and prominent; seven plates extending from the anterior, and part of the lateral margin to about two-thirds of the shell towards the beak, three of these occupying the middle, and two others, less prominent, each of the sides; margin deeply toothed by the plaits. Length 1¼ inches, width 1⅛ inches.

I found a single valve in the limetone thrown out for agricultural purposes at the plantation of Dr. I. G. Prioleau, in St. John's Parish, S. C., about five mile south of Black Colt, on the Santee Canal. It was associated with fragments and casts of various species which could not be determined with certainty, with the exception of "Pecten calvatus," (Morton,) "Ostrea panda," (Morton,) and "Scutella Lyelli," Pileus sinensis, (nobis.)

The marl on this property is conveniently obtained from the bottom of a small creek, which is often nearly dry, and as it varies in hardness, the deposit has been examined at different spots within a half mile. At one of these places, about 200 yards from that at which I found this Terebratula, the Scutella pileus-sinensis is curiously abundant and perfect, and is almost the only fossil which can be determined. In a few cart loads thrown out, and not used from being too hard, thousands of this fossil are visible.

Unfortunately, the rock is generally too hard to permit their removal; occasionally a good specimen may be procured, but generally they are broken in the effort to separate them.

Genus SCUTELLA.

Scutella pileus-sinensis.—(Mandarin's hat.) Specific character: Orbicular; posterior margin slightly truncated, with two slight indentations opposite the posterior ambulacra; margin thin, least so anteriorly.

Apex a little anterior to the centre and very much elevated and rounded; ambulacra rather short.

Beneath slightly concave, with five compressed lines corresponding with the ambulacra, dividing at about half their length into two, and then running on, becoming less distinct, to the margin. Diameter three inches.

This fossil is found abundantly in a mass of limestone on the estate of Dr. Philip G. Prioleau, in St. John's Parish, S. Carolina, about six miles south of Black Oak Lock of Santee Canal.

The limestone is excavated for agricultural purposes, and in spreading it upon the fields, numerous very perfect specimens are thrown out.

The elevation of the apex is very remarkable, and at once distinguishes this species from any other with which I am acquainted.

(*To be continued.*)

The Committee on Dr. Melsheimer's papers, read August 6th, and September 26th, 1844, describing new species of N. American Coleoptera, reported in favor of publication.

Descriptions of New Species of Coleoptera of the United States.

By F. E. Melsheimer, M. D.*

Heteroceridæ, MacLeay.

Heterocerus, Bosc. Fabr.

1. H. *ventralis*. Fuscous; elytra with two common angulated fulvous fasciæ.—2½ l. long, 1 l. wide. Pennsylvania.

Oblong-ovate, brown, yellowish pubescent, densely and finely punctured; head densely clothed with an ochraceous pubescence; the clypeus prominent, rounded and testaceous at tip; eyes black; antennæ testaceous; mandibles slightly arcuated, fringed with hairs at base; thorax moderately convex, immarginate, narrowed anteriorly, subrectilinear at base, with the sides slightly rounded; posterior angles abruptly rounded; surface invested with a dense ochraceous pubescence; elytra obtusely striate, with two common zigzag fulvous fasciæ, and a third, similarly colored interrupted one at apex; beneath fuscous, with the feet, ventral margins and tip, testaceous: anterior tibiæ dusky, with nine prominent spines at the exterior edge.

2. H. *undatus*. Fuscous; margins of thorax testaceous; elytra with obsolete undulated fasciæ.—1⅛ l. long, ½ l. wide Pennsylvania.

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* Communicated by the Entomological Society of Pennsylvania.

Brown, ochraceous pubescent, densely and minutely punctured; clypeus prominent, rounded at apex; antennæ dull rufous; eyes black; thorax formed as in the preceding, with the lateral margins testaceous; posterior angles and sides finely marginate; scutel elongate, triangular; elytra intensely finely punctured, obsoletely striate, and with obsolete undulated rufous fasciæ; beneath blackish, with the ventral apex testaceous; feet brownish, with the tarsi and knees testaceous. In size, form, color and disposition of the elytral spots, this species resembles much H. *marginatus*, Fabr., and may be a local variety of that species.

2. H. *brunneus*. Fuscous; thorax with the sides and posterior angles marginate; elytra obsoletely maculate with cinereous.—2 l. long, ½ l. wide. Pennsylvania.

Form of the preceding. Fuscous, yellowish pubescent, finely shagreened; antennæ dusky, with the basal joint dull testaceous; clypeus transverse-quadrate, the apex truncate and obsoletely testaceous; thorax like in *marginatus*, Fabr., with the sides and posterior angles marginate; elytra indistinctly maculate with cinereous; beneath and feet blackish or dark brown; tarsi and tip of venter dull testaceous.

Parnidæ, MacL.

ELMIS, Latr.—*Limnius*, Illig.

E. *vittatus*. Testaceous; elytra with the lateral margins and suture brown. 1 l. long. Pennsylvania.

Elmis bivittatus? Dej. Catal.

Testaceous; head blackish above; palpi piceous; antennæ testaceous; thorax subquadrate, convex, very minutely punctured, narrowed anteriorly, with the middle of the anterior margin dusky; glossy; elytra striate-punctate, the punctures large and profound; lateral margins from behind the humerus to the apex, and sutural margin fuscous; beneath and feet testaceous, occasionally with a rufous tinge.

MACRONYCHUS, Müller.

M. lateralis. Black, with the thorax and elytra at sides white.—1¼ l. long. Pennsylvania.

Black: head black, with two longitudinal impressed lines between and near the eyes: palpi piceous: clypeus and labrum glabrous, shining: antennæ? thorax convex, widest in the middle, the sides rounded; an obsolete impressed line each side from the apex to the middle, a faint longitudinal raised line each side near the posterior angles; lateral edges white: elytra punctate-striate cataphracted or invested with a hard crust; lateral edges white: feet black, with the tarsi piceous.

Helophoridæ, MacL.

HYDROCHUS, Germar.

1. H. *gibbosus*. Brassy; thorax with a broad dorsal groove; elytra tritubercular.—2½ l. long; 1¼ l. wide. Pennsylvania.

Elophorus tuberculatus, M. C.

——— *gibbosus*, "

Brassy: head brassy-greenish, obsoletely trituberculate between the eyes, punctured, punctures profound and distant on the cranium, confluent and rugose on the clypeus: thorax subcordate, greenish-brassy, strongly and rugosely punctured, slightly convex on the middle of the anterior margin; a broad, shallow indentation on the disk: scutel minute, orbiculate; elytra subovate, widest behind the middle; brassy-brown, strongly striate-punctate; each elytrum with three elevations, of which the two first are short, and linear, the third or posterior one is located before the declivity of the elytrum, and is oblique, linear, and studded with four or five small tubercles: beneath brown; feet dusky green-brassy; tarsi dull testaceous. This species is strictly no *Hydrochus*, neither can it with propriety be referred to any other of the present constructed genera of *Helophoridæ*.

2. H. *rufipes*. Brassy-brown; feet rufo-testaceous.—1½ l. long. Pennsylvania.

Elophorus rufipes, Melsh. Catal.

Body elongate, brassy-pale brown above: head dark, roughly punctured; the clypeus at tip truncate; thorax quadrate, slightly widest at apex, with the middle of the anterior margin feebly prolonged; surface somewhat inequal, roughly punctured; elytra strongly crenate-striate, the interstices fine, elevated, second, third and fourth lines with interruptions in the middle; suture dull rufous: beneath reddish-brown: feet rufo-testaceous; knees dusky. The elytra in some specimens are reddish-brown.

Hydrophilidæ, MacL.

Berosus, Leach.

B. *auritus*. Lurid-testaceous; head biimpressed, brilliant cupreous.—1¾ l. long. Pennsylvania.

Hydrophilus auritus, Melsh. Catal.

——— *peregrinus*, Hbst. Col. VII. p. 314, 27?

Size and form of H. *luridus*, Linn. Body lurid-testaceous: head brilliant cupreous, densely and deeply punctured, each side between the eyes with a longitudinal impression which is bounded before by a transverse impressed line; lateral and anterior edges of the clypeus black: antennæ, labrum and palpi, testaceous: thorax less densely and obviously punctured than the head, with a somewhat obsolete green-brassy spot behind the middle of the anterior margin; elytra crenate-striate, sparsely maculate with dusky: beneath and feet testaceous. Though Herbst's character, "between the eyes are two large flat tubercles, which have a bluish reflection," is absent in the present species, it may nevertheless be *peregrinus*.

Laccobius, Erichson.

L. *punctatus*. Lurid; head and thorax black, with the lateral margins of the latter testaceous.—1½ l. long. Pennsylvania.

Head minutely and densely punctured, black, shining; each side before the eyes, antennæ and palpi testaceous: thorax blackish, glossy, with the lateral margins and posterior angles broadly pale testaceous; punctured like the head: scutel black, with sparse punctures: elytra lurid, finely and obtusely punctate-

striate, the striæ dusky or black; lateral margins obsoletely testaceous: beneath black; feet yellowish.

PHILHYDRUS, Solier.

1. P. *limbalis*. Blackish; lateral margins of the head, thorax and elytra, pale testaceous.—3¼ l. long; 2 l. wide. Pennsylvania.

Black, sometimes dull reddish-brown, very minutely and densely punctured, and finely wrinkled, glossy: head, each side before the eyes, with a large pale testaceous spot: antennæ and palpi rufo-piceous: thorax with the lateral margins and exterior half of anterior and posterior edges, pale testaceous: scutel punctured like the elytra, the latter with the lateral margins broadly pale testaceous; obsolete distant rows of remote punctures: beneath and feet blackish or dark reddish-brown. Differs from H. *cinctus*, Say, to which it is closely allied.

2. P. *fimbriatus*. Blackish; lateral margins of the thorax and elytra piceous.—2—2½ l. long; 1¼—1½ l. wide. Pennsylvania.

Hydrophilus fimbriatus, Melsh. Catal.

——— *lateralis*, " "

Short, ovate, convex, blackish, shining, densely and very finely and regularly punctured: head very black: antennæ and palpi rufo-piceous: thorax piceous or dull testaceous on the lateral margins and anterior edge: elytra with obsolete rows of distant punctures; lateral margins piceous or testaceous; sutural stria distinct from the middle to the apex: beneath blackish: feet blackish-piceous, with the tibiæ and tarsi lighter. A very abundant species.

3. P. *ochraceus*. Ochraceous; thorax at margins paler; head piceous.—1¼ l. long; ¾ l. wide. Pennsylvania.

Oval, moderately convex, ochraceous, glossy, minutely and densely punctured: head dull rufo-piceous, with a testaceous spot before each eye, which last are black: labrum, palpi, feet and body beneath, pale testaceous: throat blackish-piceous: thorax with all the margins paler than the disk: scutel comparatively large, acute-triangular: elytra with the lateral margins confusedly paler than the disk; sutural stria distinct; posterior tarsi hardly ciliate.

Sphæridiidæ, MacL.

CERCYON, Leach.

1. C. *maculatum*. Blackish, with the lateral margins of the thorax, apical third of the elytra rufo-testaceous; elytra punctate-striate.—1¼ l. long; ½ l. wide. Pennsylvania.

Oblong-ovate, shining: head pitchy-black, densely and very minutely punctured; labrum finely and shortly fringed: antennæ and palpi piceous: thorax densely and finely punctured, blackish, somewhat piceous, the lateral margins rufo-piceous: scutel minute, blackish: elytra black, with the apical third confusedly testaceous; an obsolete roundish spot on the middle of the lateral margin, and a short linear one at the middle of the base, dull rufo-testaceous; lateral edges similarly colored; distinctly punctate-striate, the interstices distinctly punctured on the disk: body beneath blackish: feet chestnut.

Allied to *occalatum*, Say, but it is more strongly punctured and differently

colored than that species. It also resembles *apicale*, Say, but aside of the different disposition of the colors, it has the exterior elytral striæ entire.

2. C. *nanum*. Deep glossy black; thorax piceous at the anterior margin; elytra punctate-striate.—1 l. long. Pennsylvania.

Ovate, convex, deep black: head and thorax highly polished, densely and very finely punctured, the latter with the anterior and lateral margins slightly piceous: palpi testaceous: antennæ and feet piceous: scutel small elongate, triangular: elytra distinctly striate, with the interstices very minutely wrinkled: beneath piceous.

3. C. *mundum*. Black; elytra, feet, palpi and antennæ testaceous; each elytrum with a black spot in the middle.—¼ l. long. Pennsylvania.

Ovate, moderately convex: head and thorax black, highly polished, hardly punctured, the latter with a rufous tinge, particularly on the lateral margins: scutel colored like the elytra, the latter distinctly punctate-striate, rufo-testaceous, each with a large, somewhat obsolete, blackish spot towards the tip: antennæ, palpi, and feet testaceous: beneath blackish.

4. C. *minusculum*. Blackish; elytra punctate-striate.—¼ l. long. Pennsylvania.

Ovate, very convex, blackish, glossy: head shining, deusely and finely punctured: thorax shining, less strongly and densely punctured than the head; lateral and anterior margins piceous: scutel minute: elytra distinctly punctate-striate, the interstices very obsoletely rugose; black, with a rufous tinge, particularly the sutural region: feet testaceous? Resembles *nanum*, but is much smaller.

Agathidiidæ, Westw.

PHALACRUS, Payk.

1. P. *politus*. Deep black, shining, impunctured.—1 l. long; ¼ l. wide. Pennsylvania.

Hydrophilus politus, Melsh. Catal.

Short, oval, deep black, slightly piceous, shining, impunctured: clypeus obtusely rounded at tip: mandibles slender, with the apex acute and black: antennæ piceous, with the clava fuscous, compact, fusiform: palpi piceous: thorax convex: scutel large, obtuse-triangular: elytra convex, short, obtusely rounded at apex; highly polished, the sutural striæ distinct from behind the middle to the apex: beneath blackish: feet piceous, short, the femora robust, somewhat compressed; tibiæ compressed, finely spinose at the edges; tarsi short, slender, the articulations obsolete.

2. P. *apicialis*. Castaneous, shining: apex of the elytra, feet and beneath, testaceous.—1 l. long. Pennsylvania.

Oblong-oval, impunctured, reddish-brown, very shining: eyes black: antennæ and palpi testaceous: thorax with the sides paler than the disk: elytra with the apical third testaceous; sutural stria abbreviated a little behind the base; feet and beneath testaceous.

3. P. *nitidus*. Castaneous, nitid, impunctured.—¼ l. long. Pennsylvania.

Short, ovate, greatly convex, light chestnut, highly polished, impunctured

head with distant very minute punctures; eyes black; sutural striæ of the elytra faintly impressed.

LEIODES, Latr.

1. L. *alternata*. Ochraceous above, beneath paler.—2½ l. long. Pennsylvania.

Anisotoma americana, Melsh. Catal.

Convex, ochraceous: head and thorax glossy, very minutely or hardly punctured: scutel colored like the thorax, very minutely punctured; elytra darker than the thorax, distinctly punctate-striate, the second, fourth, sixth and eighth interstices, each with a series of distant large punctures: antennæ, palpi, feet and venter testaceous: posterior tibiæ (♂) greatly bowed.

2. L. *discolor*. Piceous above, rufo-testaceous beneath.—1½ l. long. Pennsylvania.

Convex, pitchy-brown above: antennæ, palpi, and head in the middle longitudinally rufo-piceous; eyes and inner margins of the eyes blackish: thorax very shining, hardly punctured, with the lateral margins rufo-piceous: scutel piceous, minutely punctured: elytra distinctly striate-punctate, the interstices polished and punctured as in the preceding species: epipleuræ, feet and pectus, rufo-testaceous, the two latter distinctly punctured; lateral margins of the venter pale testaceous. It is the *Anisotoma piceum* of Melsheimer's Catalogue, but the name *picea* is pre-occupied in this genus.

AGATHIDIUM, Illig.

1. A. *piceum*. Black, shining; antennæ testaceous; palpi and feet rufo-piceous.—2 l. long. Pennsylvania.

Agathidium piceum, Melsh. Catal.

Pitchy-black, very glossy: head very minutely punctured; labrum rufo-piceous: antennæ testaceous, pilose: palpi testaceous: thorax strongly convex, highly polished, impunctured, with the lateral margins decidedly piceous; an obvious small indentation on the middle: elytra glossy, impunctured, very finely and densely wrinkled, with the lateral margins obscurely piceous; sutural striæ obsolete: feet rufo or castaneo-piceous; beneath blackish or dark reddish-brown.

2. A. *exiguum*. Black; apex of the elytra obsoletely piceous; feet castaneous.—¼ l. long. Pennsylvania.

Agathidium minutum, Melsh. MS.

Black, glossy: head apparently impunctured: antennæ and palpi rufo-piceous: thorax impunctured, the lateral margins obsoletely piceous: elytra impunctured, with the apex rufo-piceous; sutural striæ abbreviated before the middle: feet chestnut-brown. Resembles the preceding, but is greatly inferior in size.

Scaphidiidæ, MacL.

SCAPHIDIUM, Oliv.

3. *piceum*. Black, immaculate.—2½ l. long; 1½ l. wide. Pennsylvania.

Scaphidium piceum, Melsh. Catal.

Black, immaculate, very shining: head sparsely and very finely punctured; eyes approximate; antennæ, palpi and mouth piceous, the first with the clava fuscous: thorax very finely punctured, with the ordinary basal punctures well defined: elytra with distant shallow punctures; besides the ordinary basal and subsutural series of punctures, there are about three much abbreviated discoidal ones, each consisting of two, three, or four punctures: feet and tip of abdomen, black-piceous: tarsi paler.

SCAPHISOMA, Leach.

S. *terminatum*. Black; posterior edge of the elytra, tip of abdomen, feet and mouth, rufo-piceous.—¼ l. long. Pennsylvania.

Scaphidium terminatum, Melsh. Catal.

Black, shining, glabrous, very minutely rugose: elytra with the apical margin rufo-piceous; sutural stria distinct; terminal segments of abdomen, feet and mouth, rufo-piceous. Differs from *convexum*, Say, in being much smaller, and apparently impunctured. It is more closely allied to *agaricinum*, Linn., than to the former species.

Silphidæ, Leach.

PETTIS, Kugellan, Fabr.

1. P. *quadrilineata*. Black; each elytrum with four longitudinal raised lines.—4¾ l. long; 2 l. wide. Pennsylvania.

Opatrum striatum, Melsh. Catal.

Body oblong, black-piceous: head weakly and obtusely indented on the front, slightly transversely convex between the eyes; punctured, punctures numerous and profound: antennæ, palpi and mouth, piceous: thorax short, transverse, a little wider behind than before; basal edge almost rectilinear; anterior margin sinuate; sides obtusely rounded; surface punctured like the head, with a transverse impression before the middle of the base, and another obsolete one on the middle of the disk; dorsal line fine, distinct on the middle: scutel transverse-oval, sparsely punctured; elytra more than three times the length of the thorax, with the sides slightly rounded; four entire longitudinal raised lines, sutural and lateral edges also elevated, the spaces each with four series of deep punctures.

2. P. *marginata*. Black; margin of the thorax and elytra piceous, the last with four raised lines.—3 l. long; 1⅛ l. wide. Pennsylvania.

Oblong, black-piceous; head as in the preceding: antennæ, mouth and palpi piceous: thorax altogether as in the preceding, only the dorsal line is distinct and entire, and the lateral margins dull-rufo-piceous: scutel as in the preceding: elytra comparatively shorter than those of the preceding, and sculptured like them, only the spaces contain but two or three series of punctures; lateral margins dull rufo-piceous: beneath and feet reddish-brown, the latter slightly piceous. The tibiæ in this and the preceding species, are furnished with two spurs at tip, and the anterior pair is very finely denticulated.

Nitidulidæ, MacL.

CERCUS, Latr.

1. C. *punctulatus*. Piceous; head and terminal segment of the abdomen rufo-piceous; feet testaceous.—1 l. long. Pennsylvania.

Blackish-piceous: head dull rufo-piceous, much and finely punctured: antennæ colored as the head, clava fuscous: thorax as wide as the elytra, transverse, sides rounded, slightly narrowed before, densely and deeply punctured; angles obtuse; scutel obtuse-triangular, piceous, impunctured: elytra twice as long as the thorax, much and distinctly punctured, obliquely punctured, obliquely truncate at apex: pygidium dull rufo-piceous, very minutely punctured: feet and beneath reddish-brown-piceous.

2. C. *pusillus*. Black; thorax strongly rounded at sides; feet piceous. Pennsylvania.

Nitidula pusilla, Melsh. Catal.

Smaller than the preceding. Black: head confertly punctured: labrum and palpi piceous: antennæ? two basal joints piceous: thorax somewhat narrower than the elytra, transverse, strongly rounded at sides, with the angles obtuse; finely and densely punctured: scutel obtuse-triangular, punctured: elytra twice as long as the thorax, obliquely truncate at apex; minutely and densely punctured, and wrinkled: pygidium very minutely punctured: beneath blackish: feet dull reddish-brown-piceous.

CARPOPHILUS, Leach.

1. C. *antiquus*. Dull reddish-brown; elytra with the apex black; feet rufous.—1¼ l. long. Pennsylvania.

Nitidula antiqua, Melsh. Catal.

Oblong, flattish, dull reddish-brown above, minutely and much punctured; head less distinctly punctured, and lighter colored than the thorax and elytra; antennæ color of the feet, clava fuscous: eyes black: thorax as wide as the elytra, transverse-subquadrate, with the sides slightly rounded; disk somewhat flattened and deeper tinted; hind angles small, acute: scute piceous, apparently impunctured: elytra covering two-thirds of the abdomen, obliquely truncate and broadly black at apex: beneath rather piceous: feet rufous.

2. C. *minutus*. Pale ochraceous.—1 l. long. Pennsylvania.

Nitidula minuta, Melsh. Catal.

Depressed, pale ochraceous, minutely, densely and rugosely punctured: antennæ color of the body, clava fuscous: eyes black: thorax as wide as the elytra, transverse-quadrate, with the sides slightly rounded; angles acute; color tinged with reddish-brown; disk depressed: scutel very finely punctured: elytra not twice as long as the thorax, covering about two-thirds of the abdomen, truncate at apex; wings ample: feet yellowish-rufous.

3. C. *bimaculatus*. Blackish; elytra rufous, with an angulated fuscous fascia.—1¾ l. long. Pennsylvania.

Nitidula bimaculata, Melsh. Catal.

Oblong, slightly convex, densely, minutely and rugosely punctured, blackish or dark fuscous, finely pubescent: mouth piceous: antennæ? thorax moderately convex, as wide as the elytra, transverse, narrowed in front, the sides slightly rounded; posterior angles subobtuse; basal margin with a shallow indentation each side, towards the angles: scutellum black, punctured in the middle: elytra slightly convex, covering not much more than

half of the abdomen, and at suture not much longer than the thorax; dull rufous, with a common angulated brown fascia, formed like the letter A; tip obliquely truncate: abdomen attenuated posteriorly: feet dull rufous.

Nitidula, Fabr., Erich.

1. N. *uniguttata*. Light brown; lateral thoracic margins and a spot on each elytrum, cinereous.—1¼ l. long. Pennsylvania.

Nitidula biguttata, Melsh. Catal.

Oblong, light brown, finely and densely cinereous pubescent, minutely and closely punctured: head colored as the disk of the thorax, slightly impressed each side near the antennæ, which are dull testaceous, with the clava fuscous: thorax transverse, narrowed anteriorly, the sides rounded and slightly dilated behind the middle; angles subobtuse; lateral margins yellowish-cinereous: elytra not covering the tip of the pygidium, obtusely rounded at apex; each with a small yellowish-cinereous spot in the middle; beneath and feet rufo-testaceous.

2. N. *rufida*. Ochraceous; eyes black.—2 l. long. Pennsylvania.

Nitidula rufida, Melsh. Catal.

Oblong, slightly convex, pubescent, very minutely and confertly punctured or shagreened, ochraceous: antennæ rufous, with the clava dusky: eyes black: thorax transverse, narrowed in front, the sides slightly rounded; a transverse impressed line behind the middle of the anterior margin; anterior angles obtuse, posterior ones acute; elytra more than twice the length of the thorax, not covering the tip of the podex, rounded at apex: feet and beneath yellowish-rufous. Resembles much *Epuræa corticina*, Erichson, but is always deeper colored, and comparatively narrower than that species.

Osmosita, Erich.

1. O. *badia*. Pale ochraceous; feet testaceous; eyes black.—1½ l. long; 1 l. wide. Pennsylvania.

Subquadrate, subdepressed, very slightly pubescent, densely and minutely punctured, pale ochraceous: head faintly impressed each side between the antennæ, which are colored like the body, with the clava broad, fuscous, excepting the first joint, which is dusky rufous: eyes black: thorax transverse, narrowed anteriorly, the sides slightly rounded; anterior margin strongly notched, posterior one slightly retuse; anterior angles obtuse, posterior ones acute, prominent: scutel densely punctured: elytra more than twice the length of the thorax, obtusely rounded, and almost covering the pygidium; humeral tubercles prominent: beneath and feet testaceous.

2. O. *castanea*. Light, or dark ferruginous; pectus fuscous; eyes black. 1½ l. long. Pennsylvania.

Nitidula castanea, Melsh. Catal.

Broad-oval, subdepressed, finely and densely pubescent, dark or light ferruginous, with the lateral margins paler; very finely and confertly punctured; antennæ rufous, the two first joints of the club fuscous; mandibles testaceous, tip and eyes black: thorax transverse, narrowed anteriorly, slightly so at base, where it is somewhat narrower than the base of the elytra,

with sides rounded; anterior margin deeply notched, posterior one slightly retuse; anterior angles subacute, posterior ones acute; lateral margins widely depressed and paler than the disk, which is obsoletely transversely indented in front of the scutel: scutellum wide, triangular, densely punctulate: elytra twice as long as the thorax, almost covering the pygidium, each obtusely rounded at apex: lateral margins moderately depressed: abdomen and pectus fuscous or blackish: feet, terminal ventral segment, and sides of the thorax and elytra beneath, rufous.

PALLODES, Erich.

P. *obsoletus*. Rufo-testaceous: elytra entire, punctate-striate. ¼ l. long Pennsylvania.

Short, strongly convex, rufo-testaceous, shining: head densely and imperceptibly punctured; eyes and tips of mandibles black: the color of the antennæ is that of the head, the clava is dusky, oblong, four jointed, two intermediate joints thickest and equal: thorax somewhat paler than the head, impunctured, very shining; each side towards the posterior angles with a small shallow indentation: scutel moderate, triangular, apparently impunctured: elytra entire, rounded at apex; finely striate-punctate, the interstices impunctured; beneath colored as above: feet testaceous, with the tibia strongly ciliate or denticulate on the outer edge, and at the tip armed with two prominent spines; nails small. This species does not satisfactorily correspond in all its characters with the present subgenus, but as it approaches nearer to it than to any other subgenus of *Strongylinæ* I thought proper to place it here. It is rare, and found in company with P. *silaceus*, Erich., and *Cychramus adustus*, Erich.

Engidæ, Mac L.

CRYPTARCHA, Shuck.

C. *picta*. Fuscous; thorax and elytra with the lateral margins pallid, the latter with an angulated cinereous fascia on the middle.—1 l. long. Pennsylvania.

Nitidula undata, Melsh Catal.

Elliptic, moderately convex, glossy, finely ashy pubescent, very minutely and densely punctured, dark fuscous: head somewhat large, plane, with an obsolete transverse impressed line between the eyes; mouth obsoletely piceous: antennæ piceous, with the club oblong: thorax transverse, narrower before, with the sides slightly rounded; lateral margins somewhat depressed; anterior angles obtuse, posterior ones acute, prominent: scutellum small, triangular, piceous: elytra entire, about twice as long as the thorax, rounded at the apex; ordinarily depressed behind the middle with a common zigzag cinereous fascia, and sometimes with a similar one behind the base: beneath and feet rufo-piceous.

IPS, Fabr., Erichson.

Nitidula (*Ips.*) *fasciata*, Oliv.—Var. β. Elytra black, with a large irregular spot at base, and smaller transverse one towards the apex, fulvous.—*Ips 4-maculosa*, Melsh. Catal.

I. 4-*signatus*, Say.—Var. *β*. Humeral spot double, small; sometimes the humeral and spinal spots are obsolete or wanting.—*Ips similis*, M. MS.

1. l. *bipustulatus*.—Black; elytra with four small fulvous spots.—2 l. long, 1 l. wide. Pennsylvania.

Ips bipunctatus, Melsh. Catal.

Subquadrate, deep black, glossy: antennæ piceous, clava dusky: head much, finely and deeply punctured: thorax transverse-subquadrate, with the sides slightly rounded and obsoletely piceous, punctured as the head; a small obsolete basal indentation towards the posterior angles: scutel sparsely and minutely punctured on the base: elytra short, finely and deeply punctured, obtusely rounded at apex; each elytrum with a small roundish, yellowish or fulvous spot on the middle of the basal margin, and another similarly colored larger one between the middle and tip: feet castaneous or piceous: beneath pitchy-black.—Resembles somewhat 4-*signatus*, Say, but aside of its inferior size and other differences, it may be distinguished from that species by its more quadrate contour.

2. I. *geminatus*. Castaneous; elytra each with two whitish spots, the posterior one double. 2½ l. long—1 l. wide. Pennsylvania.

Oblong, dull reddish-brown, glossy, much, finely and deeply punctured: head blackish, without any nasal impressions: thorax less distinctly punctulate on the disk than towards the sides, where it has the two ordinary indentations; lateral edges almost rectilinear: scutel sparsely and finely punctured: elytra each with two whitish or pale yellowish spots; the anterior or subhumeral spot is composed of three roundish, closely connected ones, the posterior spot is located behind the middle, is transverse and composed of two oval or roundish ones, of which the sub-sutural one is the larger; apex obtusely rounded: feet and beneath castaneous or piceous.—Differs from *fasciatus*, Oliv., 4-*signatus*, Say, *sanguinolentus*, Oliv., and *bipustulata*, by the oblong form of the body. Specimens of this species may occur in which the prevailing color is black.

RHYZOPHAGUS, Herbst.

1. R. ? *parallelus*. Dark castaneous; elytra paler; feet and palpi rufo-piceous. 2 l. long. Pennsylvania.

Parallel, subdepressed; head as wide as the apex of the thorax, above flattened, much and distinctly punctulate, reddish-brown: antennæ ? palpi and mandibles rufo-piceous, the latter exposed, with the tips acute and black: thorax longer than wide, scarcely narrowed behind; apex truncate, with the anterior angles obtuse; base together with the hind angles obtusely rounded; sides rectilinear; basal edge finely margined; much deeply and regularly punctulate. Scutellum minute, triangular, black: elytra paler than the thorax, with the lateral margins towards the apex obsoletely and broadly testaceous, punctate-striate, the interstices distinctly punctulate: beneath colored like the thorax: pectus strongly punctured: feet rufo-piceous.—The present specimen, and the only one of this species in my collection, is deprived of the antennæ and all the tarsi. It has somewhat the form of a *Trogosita*.

2. R. *erythropterus*. Black; antennæ, elytra and feet rufous.—¾ l. long. Pennsylvania. Bank of the Susquehanna.

Elongate: head dull rufo-piceous, somewhat depressed above, much punctulate, with short obsolete longitudinal striæ on the vertex; clypeus slightly longitudinally convex: antennæ rufous, the clava short, ovate, with the joints compact: thorax as wide as the elytra, subquadrate, truncate at apex and base, the sides and posterior angles obtusely rounded; disk somewhat depressed, with deep and distant punctures; lateral margins more numerously punctulate; each side of the middle with an impressed longitudinal line, bounded at base by an obsolete transverse one: scutel triangular, rounded at tip: elytra rufous, dusky, truncate and slightly narrowed at apex; obsoletely punctate-striate, the striæ fine, distinct: epipleuræ and feet rufous: pygidium exposed, strongly punctulate: beneath black.

TROGOSITA, Fabr.

1. T. *castanea*. Black above, beneath and feet reddish-brown; head anteriorly obsoletely rufous. 5½ l. long, 2½ l. wide. Pennsylvania.

Trogosita castanea, Melsh Catal,

Closely allied, if not the same, to *cinnamonea*, Say, but it differs from that species in being differently colored, in having the head and thorax more distinctly punctured, in the elytra being always comparatively wider and decidedly differently engraved; in the present species the striæ and punctures are obsolete and the surface much wrinkled. Say, in a letter, considers *castanea* identical with his *cinnamonea*.

2. T. *corticalis*. Black; antennæ and feet piceous; elytra profoundly punctate striate. 4½ l. long, 1½ l. wide. Pennsylvania.

Trogosita corticalis, Melsh. Catal.

——— *subnigra*, Beauv. Ins. p. 127, pl. 32, f. 9. ?

Body subelliptic; black: head with large, deep and vicinal punctures; a punctiform impression between the eyes: mandibles black; antennæ piceous: thorax subquadrate, obviously widest at base, with the sides feebly arcuated; surface punctured like the head, with a narrow impunctured dorsal space; posterior angles minute, acute, excurved: elytra with the sides almost parallel from the humeral angle to near the tip; deeply punctate-striate, the interstices each form two series of minute oblong distant punctures: beneath and feet piceous. This species can hardly be either T. *depressior* or *subnigra* of Pal. de Beauv., if his figures and descriptions of these two species be correct.

3. T. *limbalis*. Dull rufo-piceous, with the disk of the thorax and elytra blackish. 4 l. long, 1½ wide. Pennsylvania.

Form entirely that of the preceding; head black, tinged with dull rufous at the sides; sculptured as in the preceding: antennæ rufo-piceous; thorax black, with the lateral margins broadly dull rufo-piceous; contour and engraving as in the preceding, with the impunctured dorsal space more feebly defined: elytra dull rufous, with the sutural region dusky or blackish; sides somewhat less parallel than in the preceding species; finely punctate-striate, the interstices flat and transversely finely wrinkled: venter and postpectus

dark reddish-brown-piceous; antepectus, feet, epipleuræ and ventral margins rufo-piceous. This species is closely allied to the preceding, from which it differs, apart from the color, in no essntial character, except in the fine somewhat obsoletely puncture-striæ of the elytra, and the perfectly flat and wrinkled interstices of the same. It must be also closely allied to *marginata*, Beauv., and may probably prove to be that species.

4. T. *dubia*. Blackish, with the sides of the elytra piceous, or testaceous; feet rufo-piceous. 2¾ l. long, 1 l. wide. Pennsylvania.

Body subelliptic: head black, with large, deep and vicinal punctures, mandibles piceous: antennæ testaceous, piceous: thorax black, obviously widest at apex, with the sides very faintly rounded; posterior angles minute, excurved; surface punctured as the head, with the mesial impunctured space very narrow, obscure; a small indentation on the anterior angles: scutel impunctured, pitchy-black: elytra blackish, tinged with reddish-piceous, slightly widest behind the middle, with the lateral margin obsoletely dull reddish-brown or piceous; punctate-striate, the interstices with minute, distinct, oblong punctures; beneath piceous; feet rufo-piceous.

5. T. *nana*. Reddish-brown, with the sides of the thorax rounded. 2 l. long, ¾ l. wide. Pennsylvania.

Oblong-subovate: head blackish, finely and somewhat densely punctured: antennæ testaceous: thorax strongly transverse, narrowed at base, with the sides rounded and faintly excurved at the posterior angles; angles acute, the hinder ones not prominent; punctured as the head; dull reddish-brown; dorsal impunctured line narrow and obscure: elytra paler than the thorax, about as wide as the thorax, punctate-striate, with the striæ very slightly impressed: beneath and feet colored as the elytra.

Only a single specimen of this species has yet occurred to us, which was perhaps in an immature state when captured.

6. T. *bimaculata*. Black; each elytrum with a large fulvous spot near the middle. 2½ l. long, 1¼ l. wide. Pennsylvania. Rare.

Trogosita bimaculata, Melsh Catal.

——— *fasciata*, " "

Black, oblong-ovate: head finely and deeply punctured, with a small shallow frontal indentation: antennæ piceous, with the clava testaceous: thorax blackish, with lateral margins piceous and rounded: surface as much punctured as the head, but less distinctly; each side of the middle with a small orbiculate indentation; posterior angles minute, acute, feebly excurved: elytra comparatively wide and short, distinctly wider than the thorax, punctate-striate, striæ shallow and with the punctures obsolete before the apex; each elytrum with a large fulvous spot a little before the middle and nearer the suture than the lateral margin, the latter obsoletely piceous: beneath obscure reddish-brown: feet piceous, with the tarsi paler.

BITOMA, Herbst.

B. *undulata*. Fuscous above, beneath and feet dull rufous; elytra maculate with cinereous before the middle, and a similarly colored fascia before the tip.— 2½ l. long. Pennsylvania.

Colydium undulatum, Melsh. Catal.

Body elongate: head finely and densely granulated, above blackish, with the apex dull rufous; finely cinereous pubescent: antennæ rufous, with the clava distinctly 2-jointed: thorax brown, tinged with rufous, pubescent like the head; front margin elevated and somewhat advanced in the middle; anterior angles very prominent; lateral edges rectilinear, denticulated, abruptly contracted near the posterior angles; disk longitudinally and widely impressed: elytra blackish, broadly dull rufous at base, varied with small ashy spots, a dull rufous fascia, maculate with ashy, before the apex: four longitudinal raised, finely granulated lines, the interstices each with a double series of punctures: feet and beneath dull rufous, sprinkled with numerous punctiform ashy scales. This species, in the form of the body, bears a stronger resemblance to a *Colydium* than to B. *crenata*, Hbst., the type of the genus *Bitoma*.

BOTHRIDERES, Dejean's Catalogue.

B. *exaratus*. Dark ferruginous; thorax and elytra longitudinally ribbed.—2 l. long. Pennsylvania.

Ferruginous: head very minutely granulated: antennæ?: thorax narrowed posteriorly; lateral edges elevated, faintly rounded; angles acute, posterior ones deflexed; an entire, fine, submarginal costa, similar, but shorter, or dislocated ones on the disk: scutel minute, orbiculate: elytra lighter tinted than the thorax, each with four longitudinal narrow acute lines; suture and lateral edges raised: feet and beneath rust-red. My collection contains only a single specimen of this species, which is closely allied to B. *geminatus*, Haldeman, *Ditoma paradoxa*, of some, but is smaller and comparatively much narrower than that species.

MONOTOMA, Herbst.

M. *fulvipes*. Blackish; feet and antennæ fulvous.—¼ l. long. Pennsylvania.

Latridius rufipes, Melsh. Catal.

——— *niger*. "

Black, opaque: head sparsely hispid, finely shagreened, with two longitudinal impressions between and near the eyes: labrum in front piceous: palpi and antennæ dull fulvous: thorax finely shagreened, hispid, oblong-quadrate, slightly narrowed at apex, with the posterior angles rounded, the anterior ones small, acute; two somewhat obsolete longitudinal impressions on the middle near the base: elytra dull reddish-brown, slightly hirsute, finely striate-punctate, the interstices fine, convex: beneath black, with the tip of the venter obsoletely testaceous: feet dull fulvous.

SYNCHITA, Hellwig.

S. *fuliginosa*. Ferruginous above, dull rufous beneath.—1½ l. long. Pennsylvania.

Lyctus fuliginosus, Melsh. Catal.

Ferruginous, much, finely and yellowish granulated: eyes black: antennæ and palpi rufo-testaceous, the former with the capitulum somewhat depressed: thorax with the lateral margins narrowly depressed, and finely ciliate at the

edges; a very obsolete mesial line: elytra crenate-striate, the interstices transversely wrinkled: beneath dark rufous: feet lighter.

CICONES, Curtis.

C. *marginalis.* Brunneous above; lateral thoracic margins and body beneath dull rufous.—1½ l. long. Pennsylvania.

Lyctus marginalis. Melsh. Catal.

Dark brown above, densely hispid; head small, tinged with rufous, finely granulated, plunged to the eyes into the emargination of the thorax: antennæ piceous, the capitulum rufous and pubescent at tip: thorax widely and profoundedly emarginate at apex, with the lateral margins dull rufous, widely depressed and slightly rounded; anterior angles prominent, acute; posterior ones faintly rounded; surface finely granulated; lateral edges ciliated; scutellum punctiform: elytra obsoletely maculate with dull rufous; lateral edges similarly colored; finely crenate-striate, the interstices somewhat obsolete, with ranges of short, robust setæ: feet and beneath dull rufous.

XYLOTROGUS, Stephens.

1. X. *brevicornis.* Badious: antennæ short, robust.—1½ l. long. Pennsylvania.

Lyctus americanus, Melsh. Catal.

Head blackish, inequal, deeply and widely impressed each side between the antennæ; strongly punctured: antennæ piceous, robust, short, 11-jointed, joints 2—9 transverse, equal, compact; two last joints slightly thicker than the preceding ones, separate, terminal joint obtuse: thorax blackish, glabrous subquadrate, scarcely narrowed at base; angles acute; transversely impressed behind the middle; surface with large and profound punctures, with a narrow, impressed mesial line: scutel minute, blackish: elytra chestnut, deeply striate, striæ with transverse punctures, the interstices very fine, with the sutural one remotely and minutely punctured; apical edge slightly reflexed: beneath strongly punctured, dark chestnut: feet similarly colored. Closely allied to *Lyctus reflexus*, Say, but the outlines of the thorax are different.

2. X. *parallelipipedus.* Fuscous; feet rufo-testaceous. Less than 1½ l. long. Pennsylvania.

Lyctus parallelipipedus? Melsh. Catal.

Elongate, subparallel, dull reddish-brown, densely and very minutely punctured, finely golden pubescent: head in front and mandibles rufous: antennæ?: eyes black: thorax subquadrate, convex, somewhat longer than wide, slightly narrowed at apex, which is slightly advanced, and obtusely rounded in the middle; anterior angles subacute; basal edge slightly bisinuate; sides almost rectilinear: scutel minute, transverse: elytra convex, nearly three times longer than the thorax, with the sides subparallel; apex obtusely rounded: beneath chestnut, glabrous; feet paler.

LYCTUS, Fabr.

L. *striatus.* Reddish-brown, pubescent; elytra feebly punctate-striate.—2–2½ l. long. Pennsylvania.

Lyctus striatus, Melsh. Catal. 178.
——— *canaliculatus*, " "

Dull reddish-brown: head roughly punctured, yellowish pubescent: eyes black: thorax subquadrate, slightly narrowed behind, with the sides rectilinear to near the apex; punctured like the head, golden pubescent, with a wide glabrous indentation on the disk: elytra cylindric, frequently paler than the thorax, and sometimes with the disk darker; obtusely punctate striate, the interstices yellowish pubescent: antennæ and feet colored as the elytra: postpectus brown, shining: antepectus and venter reddish-brown.

2. L. *axillaris*. Fuscous, or reddish-brown, pubescent; elytra with a testaceous humeral spot.—1½ l. long. Pennsylvania.

Lyctus axillaris, Melsh. Catal. 179.
——— *fuscus*, " " "

Reddish-brown, or fuscous: head and thorax as in the preceding, the latter, however, is almost quadrate or hardly narrowed behind: elytra sculptured and clothed as in the preceding; humeral tubercle obsoletely testaceous: antennæ, feet and beneath, as in the preceding. This species may probably prove to be the male of the preceding one.

LÆMOPHLŒUS, Dejean.

L. *fasciatus*. Testaceous, glabrous: elytra fuscous, each with a testaceous spot and four striæ.—1¾—2¼ l. long, ¾—1 l. wide. Pennsylvania. Not rare.

Cucujus fasciatus, Melsh. Catal.

Flat, testaceous, glabrous: head as large as the thorax, densely punctulate, with longitudinal and transverse epicranial lines distinct: mandibles blackish at tip: palpi and antennæ testaceous, the latter long, sparsely pubescent: thorax very short, much narrower at base than at apex; base and apex truncate; hinder angles minute, acute, excurved; sides slightly rounded, more or less crenate; minutely and densely punctured, with the disk often dusky; lateral submarginal line distinct, with a small impression on its inner side towards the base: scutel testaceous, short, wide, obtusely rounded at tip; elytra short, brownish, very finely punctured; each elytrum with a large testaceous spot near the middle, and four longitudinal impressed lines: feet and beneath yellowish-testaceous. Though this is an abundant species, yet I have not seen it described. It is, perhaps, the *Adelina complanata* of Dej. Catal.

Cucujus oblongus, Fabr., varies much in size—from 2½ to 6 lines in length.

Cucujus biguttatus, Say, varies much in size, color and form of the antennal joints.

TETRATOMA, Herbst.

1. T. *obsoleta*. Black, beneath piceous: elytra obsoletely maculate with rufous.—2¼ l. long. Pennsylvania.

Nycetophagus 10-*guttatus*, Melsh. Catal.

Black above: head coarsely punctured, pubescent: anntennæ, month, palpi and feet, dull rufo-piceous, the first with the clava fuscous: thorax punctured

and pubescent like the head: scutel strongly punctured: elytra pubescent, punctate-striate, the interstices transversely wrinkled; a humeral spot, a small one behind the scutel, one on the lateral margin near the middle, a narrow undulated fascia behind the middle, and a small spot before the apex, obsoletely rufous: beneath piceous; tip of the venter paler. This species has the form of a *Mycetophagus*, and resembles somewhat M. *punctatus*, Say.

2. T. *tessellata*. Black; elytra maculate with fulvous.—1¾ l. long. Pennsylvania.

Mycetophagus tessellatus, Melsh. Catal.

Black above, strongly punctured, finely pubescent: mouth and antennæ dull testaceous, the latter with the clava fuscous: thorax with a basal indentation each side of the middle; scutel strongly punctured: elytra transversely wrinkled, each elytrum with about ten fulvous spots, which are frequently confluent: beneath piceous or dull testaceous.

Mycetophagidæ, Westw.

Mycetophagus, Fabr.

1. M. *bimaculatus*. Testaceous; head, thorax and two spots on each elytrum black.—2 l. long. Pennsylvania.

Head blackish, strongly punctured, pubescent: labrum and antennæ dull testaceous, the latter with the clava fuscous: thorax blackish, punctured and pubescent like the head, with a profound basal impression each side of the middle: elytra rufo-testaceous, pubescent, punctate-striate, the interstices transversely wrinkled; each elytrum with two large irregular black spots, the anterior spot attains the lateral margin, but not the suture; the posterior one is contiguous to the suture, but scarcely attains the lateral edge; feet and beneath dull testaceous, finely pubescent.

2. M. *bipustulatus*. Black; each elytrum with two fulvous spots. Hardly 2 l. long. Pennsylvania.

Black, strongly and much punctured, yellowish pubescent: antennæ, palpi and labrum dull testaceous: thorax and elytra sculptured as in the preceding, the latter with a roundish subhumeral spot, and a transverse one behind the middle, fulvous: beneath piceous: feet dull testaceous.

Atomaria, Kirby.

1. A. *pubescens*. Dull ochraceous, pubescent.—1¼ l. long. Pennsylvania.

Cryptophagus pubescens, Melsh. Catal.

Body dull ochraceous, yellowish pubescent: head finely and confertly punctured: eyes black: antennæ and feet paler than the body: thorax transverse, punctured like the head, with the lateral edges entire, and feebly rounded; scutel transverse: elytra very minutely punctured and wrinkled, and densely pubescent.

2. A. *crenata*. Ochraceous, pubescent; elytra striate-punctate.—1¼ l. long. Pennsylvania.

Ochraceous, yellowish pilose: head still more finely punctured than in the preceding: antennæ and feet testaceous: eyes black: thorax as in the preceding, with two small tufts of hair on the middle of the posterior edge: scutel transverse: elytra finely striate-punctate, punctures placed in very shallow striæ, the interstices convex, each with two rows of very minute, distant punctures: beneath pale rufous.

ANTHEROPHAGUS, Knoch, Latr.

A. *ochraceus*. Ochraceous, pubescent; base of the tibiæ blackish.—2½ l. long. Pennsylvania.

Oblong-oval, pale ochraceous, densely clothed with a yellowish prostrate pubescence: head large, above flattish, very minutely punctured, posteriorly glabrous, at tip profoundly emarginate: mandibles at tip black, acute: antennæ robust, with the basal joint stout; joints 2—8 equal, moniliform; fuscous, with the basal joint, and frequently the clava, ochraceous: eyes black: thorax transverse-quadrate, with the sides slightly rounded; surface very minutely and densely punctured: scutel transverse, very narrow, and often of a deeper tint than the body: elytra very minutely and densely wrinkled, obsoletely striate: venter and postpectus rufous: feet colored like the elytra, with the base of the tibiæ blackish.

CRYPTOPHAGUS, Herbst.

C. *maculatus*. Rufous; elytra testaceous, punctate-striate, maculate with fuscous; thorax at sides dentate.—1¼ l. long. Pennsylvania.

Latridius maculatus, Melsh. Catal.

Dull rufous: head inequal, with the front somewhat impressed and wrinkled: antennæ 11-jointed, first joint clavate, second robust, about the length of the third, which is longer than the fourth; clava 3-jointed, two first joints subglobular, third or terminal joint ovate: palpi small, filiform: eyes black: thorax subtransverse, with the base truncate, finely margined; apex obtusely rounded; sides rounded, with four prominent teeth at each; lateral margins depressed; disk convex, rough with rugose punctures, deeply grooved in the middle: elytra wider at base than the thorax, widest behind the middle, moderately convex, testaceous, obsoletely maculate with fuscous, profoundly punctate-striate, with the striæ much wider than the interstices, sutural stria very short, the interstices subacute, lateral one extending from the base to the suture; lateral edge finely marginate: feet testaceous; tarsi simple, heteromerous.

CORTICARIA, Marsh.

1. C. *pulicarius*. Blackish; elytra crenate-striate. ½ l. long. Pennsylvania.

Latridius pulicarius, Melsh. Catal.

Head and thorax blackish, with a rufous tinge, densely and finely granulated, the former with an obsolete longitudinal impressed line in the middle: antennæ colored like the feet: eyes deep black: thorax truncate-subcordate, transversely indented before the base; mesial groove distinct: elytra dark chestnut, without gloss, deeply crenate-striate: feet dull red-testaceous.

2. C. *pusillus*. Pale rufous; antennæ and feet testaceous. ½ l. long. Pennsylvania.

Latridius pusillus, Melsh. Catal.

Form and size of the preceding. Head and thorax punctulated, finely pubescent, pale rufous, the first somewhat convex between the eyes, which are black: antennæ and feet testaceous: thorax convex, narrowed and rounded anteriorly, transversely and widely indented before the basal margin: elytra deeper colored than the thorax, clothed with an ashy pubescence punctate-striate: beneath dark rufous.

Dermestidæ, Leach.

TROGODERMA, Latr.

T.? *tarsale*. Black; antennæ and tarsi testaceous; elytra maculate with rufous. 1¼ l. long. Pennsylvania.

Body subovate, black, with minute short hairs: head finely punctulate: antennæ testaceous, thickened towards the apex, with all the joints, excepting the three first, in ♂, shortly pectinate, and the terminal joint long, lanceolate; antennæ (♀) very short, with the clava compactly four-jointed: thorax very minutely punctured, sparsely covered with ashy and rufous pilose spots: elytra finely and densely punctured, and minutely longitudinally wrinkled, maculate with dull rufous, and with sparse ashy pilose irregular transverse lines: beneath black; femora piceous; tibiæ and tarsi pale testaceous. This is perhaps *Dermophagus pectinatus*, Dej. Catal. The larvæ of this species infest entomological collections.

ANTHRENUS, Geoff. Fabr.

1. A. *destructor*. Dark fuscous, densely clothed with minute ochraceous scales; posterior thoracic angles and spots on the elytra, white. 1—1¼ l. long. Pennsylvania. Frequent in neglected insect collections.

Anthrenus tricolor, Hbst. Col. VII. 333?

" " *museorum*, Melsh. Catal.

Brown, densely clothed above with ochraceous scales, particularly the disk of the thorax: antennæ deep black: thorax with the sides of the basal margin, hinder angles, and sometimes the middle lobe, white squamulose: elytra with two or three irregular, undulated fasciæ of minute white scales, sometimes disposed only in spots: body beneath densely covered with minute ashy or white scales, sometimes with the ventral segments laterally each with a dusky or black spot: feet blackish, sparsely covered with ashy scales. Altogether different from *mascorum*, Fabr., and does not satisfactorily agree with the description of *tricolor* by Herbst.

2. A. *castaneæ*. Black; elytra dull red-brown, with scattered yellowish scales. 1 l. long.

Anthrenus castaneæ pumila, Melsh. Catal.

" " *adspersus*, Hbst. Col. VII. 332.8?

Head black: antennæ and feet dull rufous: thorax black, sometimes nearly colored as the elytra, with the posterior margins and hinder angles sparsely clothed with whitish or yellowish scales, and with a few scattered similarly colored ones on the disk: elytra reddish-brown, with scattered yellowish

scales, often disposed in small spots, and most numerous behind the base: beneath blackish, or dull reddish-brown, partially clothed with ashy scales. Occurs in profusion on the blossoms of *Castaneæ pumila*.

2. A. *thoracicus*. Black; thorax each side broadly white squamulose; elytra with a large lateral white spot. 1 l. long. Pennsylvania.

Anthrenus thoracicus, Melsh. Catal.

Black; head with a few scattered white scales: antennæ and feet dull rufous, or dark reddish brown: thorax densely and broadly covered at the sides with minute whitish scales: elytra with the lateral margins each with a large white squamulose spot, occupying one-third of the side, and extending almost to the suture, on which is a common, short linear spot behind the middle, and a similar but shorter one before the apex, ochraceous: pectus partially, and venter entirely covered with small, white scales: lateral margins of the venter with small blackish spots.

Byrrhidæ, Leach.

Syncalypta, Dillwyn.

3. *hispidus*. Castaneous, hispid; antennæ and feet red-brown. 1½ l. long. Pennsylvania.

Chestnut-brown, fuscous hispid: head blackish, somewhat wrinkled, very finely and distantly punctured: thorax punctured like the head: elytra darker than the thorax, glossy, with very fine vicinal punctures: beneath glabrous.

Byrrhus, Fabr.

1. B. *trivittatus*. Blackish-brassy; elytra with three broad green vittæ. 3. l. long, 2. l. wide. Pennsylvania.

Byrrhus varius, Steff. Germ. Zeitsch. IV. 28. 23?

Body short-ovate: head cupreous, confertly and profoundly punctated and somewhat wrinkled, with a transverse angulated line between the antennæ, being more or less obtuse and obsolete: antennæ blackish: thorax cupreous as the head, densely, minutely and profoundedly punctured, and with numerous transverse wrinkles towards the base and posterior angles: scutel obtuse-triangular: elytra brown-brassy, very minutely shagreened, finely punctate-striate, with the spaces broad, slightly elevated, flat, the three inner ones green, the sutural one abbreviated towards the middle; apex obtusely rounded: beneath black: feet dark fuscous. Does not satisfactorily agree with any specimen of *varius*: Fabr., in my collection.

2. B. *undatus*. Dark fuscous: elytra with two common transverse, undulated white lines on the middle. 2 1-5th, l. long, 1½ l. wide Pennsylvania.

Byrrhus murinus, Melsh. Catal.—Steffany. Germar Zeitschrift, Vol. IV. p. 34, No. 19?

Short-oval, very dark fuscous, tomentose and short, black hirsute: head minutely wrinkled: palpi piceous: thorax very short, greatly attenuated anteriorly, with the base and apex bisinuate; surface strongly shagreened: two short linear impressions in front of the scutel; an obsolete medial groove: scutel deep black tomentose: elytra closely and faintly striate, the interstices narrower than the striate spaces, black tomentose, particularly the three inner ones; two common transverse white lines on the middle, not

attaining the lateral margin and confluent at their ends; apex subacutely rounded: beneath black-fuscous: feet dark rufo-piceous. Differs in many respects from *murinus*, F.

3. B. *glabellus*. Black, glabrous; elytra finely striate. 2 2-5ths l. long. 1¼ l. wide.

Short-oval, black, glabrous glossy: head densely and rugosely punctured, punctures large, profound and distant on the clypeus: thorax short, much contracted anteriorly, with the sides emarginate; anterior and posterior margins bisinuate; anterior angles strongly deflexed, acute, hinder ones acute; surface densely and deeply punctulate: elytra with ten fine, somewhat deeply impressed striæ, the second striæ is abbreviated near the middle and united at the origin with the third, the fourth stria is united in a similar manner with the fifth, spaces between the striæ irregular in breadth, finely transversely wrinkled; apex acutely rounded: beneath black, strongly punctured: feet dark rufo-piceous.

SIMPLOCARIA, Marsh.

S. *strigosa*. Deep black-brown, subglabrous; elytra punctate-striate. 1¼ l. long, ½ l. wide. Georgia.

Byrrhus strigosus, J. Melsh. MS.

Short-oval, black or dark brown, subglabrous glossy: head and thorax opake, intensely finely shagreened, the former with the anterior edge margined: scutel minute triangular: elytra convex, acuminate at apex; distinctly punctate-striate, almost glabrous, and like the head and thorax, with scattered short capitate setæ: beneath blackish: feet dark reddish-brown.

(*To be continued in next number.*)

The Committee to whom was referred the following paper, read August 20, 1844, reported in favor of publication.

Description of new species of Reptiles from Africa.

By Edward Hallowell, M. D.

Coluber lævis.

Description.—Head of moderate size, broad posteriorly, narrowed in front, covered above with nine plates; the occipital are large, pentagonal, the broadest part presenting anteriorly; the vertical plate is hexagonal, broadest anteriorly; the supra-orbital are of moderate size, hexagonal, the inferior margin being curved for the reception of the upper margin of the orbit; there are two anterior and two posterior frontal plates; the posterior are quadrangular, the anterior are pentagonal; there are two nasal plates with the nostril placed between them; there are two posterior and one anterior orbitar plates; there are seven superior labials; the eyes are large, the irides ——; there

are five temporal plates on each side of the head; the body is of moderate size, thicker in the middle, covered above and on the sides with smooth quadrangular scales; the tail is long and tapering; abdominal scuta 150 : subcaudal 100.

Color.—Body bronze above, with eight or ten yellowish bands upon the neck and anterior, part of the body; four or five others are also observed upon the middle, but they are here indistinct; these bands or striæ are formed by the separation of an equal number of broad bands of a dark purple color, which coalesce upon the posterior part; these bands extend upon the sides, where they assume a triangular form, the apices presenting downward; the under surface of the abdomen is yellow, clouded with bronze; the sides of the body in the spaces intervening between the bronze colored bands above described are also yellow.

Dimensions.

	Feet.	*Inches.*
Length of the head, ...	0	1
Breadth posteriorly, ...	0	½
Length of body, ...	1	6
Length of tail, ...	0	9

Dipsas carinatus.

Description.—Head small, rounded in front, covered above with nine plates; the occipital are large, pentagonal, broadest anteriorly; the vertical plate is hexagonal, the supraorbital are quadrangular, the inferior margins being curved to receive the eye; there are two anterior and two posterior frontal plates; the posterior are quadrangular, larger than the anterior; there are two nasal plates, the posterior is much the larger, with the nostril placed between them: there are seven superior labial plates; the eyes are large, irides ——; body slender, triangular, compressed upon the sides, covered with oblong narrow and carinated scales; tail of moderate length, slender and tapering—abdominal scuta 247: subcaudal 78.

Color.—Body brownish above with numerous yellow terminal narrow bands; under surface of chin and throat light yellow; abdomen and under surface of tail greenish yellow.

Dimensions.

	Feet.	*Inches.*
Length of head, ...	0	¾
Breadth posteriorly, ...	0	½
Length of body, ...	2	2½
Length of tail, ...		4¾

(*Trionyx Mortoni, young.*)

Discription.—Head of moderate size, conoidal, flattened superiorly, triangular in front; snout somewhat prolonged; eyes of moderate size; jaws horny, and of a light yellow color; carapace oval, depressed, presenting numerous lines or striæ near the upper extremity; sternum cruciform, rounded anteriorly; posterior extremity triangular; limbs short, webbed at their extremity, each having three toes.

Color.—Carapace and surface of the body generally of an ash color, the carapace presenting numerous rounded spots of a white color with black borders, having fourteen or fifteen black blotches in its centre; similar spots are observed upon the neck, extremities and under surface of the body at its margin; upon the sternum are observed numerous striæ or undulating lines of a dark color; the posterior part of the sternum is white.

Dimensions.

	Feet.	*Inches.*
Length of body, ...	0	8
Breadth, ...	0	2½ at its middle.
Length of head, ...	0	1
Breadth posteriorly, ...	0	½

The Committee to whom was referred a letter from Prof. Reid, of New York, containing analyses of three Sulphur springs at Sharon, Scoharie county, N. Y., reported for publication the following portion.

To MESSRS. RUSHTON & Co.

In compliance with your request I proceeded to Sharon Springs, and there analysed three Springs, named, "White Sulphur," "Blue Sulphur," and "Magnesia." The temperature taken at various times, during a four day's residence at the Springs, was invariably

48° of Fahr. in each Spring, not being influenced by changes of temperature in the atmosphere.

Sharon, Scoharie county, N. Y.

The contents of one gallon of the White Sulphur were,

	Water copious.
Bicarbonate of magnesia,	24. grains.
Sulphate of magnesia,	34. "
Sulphate of lime,	85.4 "
Hydrosulphate of magnesia and lime,	3. "
Chlorides of sodium and magnesium,	2.7 "
	149.1 "
Hydrosulphuric acid gas or sulphuretted hydrogen,	20.5 cubic inch.

The contents of one gallon of the Blue Sulphur were,

Bicarbonate of magnesia,	32. grains.
Sulphate of magnesia,	7.5 "
Sulphate of lime,	77.5 "
Chlorides of sodium and magnesium,	2.5 "
Solid contents,	119.5 "

The contents of one gallon of the Magnesia Spring were,

Bicarbonate of magnesia,	30.5 grains.
Sulphate of magnesia,	22.7 "
Sulphate of lime,	76. "
Hydrosulphates of magnesia and lime,	.5 "
Chlorides of sodium and magnesium,	3. "
Solid contents,	132.7 "
Hydrosulphuric acid gas or sulphuretted hydrogen,	3.3 cubic inch.

Richland Springs, Otsego county, N. Y.

Analysis of Two Springs, No. 1, A., No. 3, C. Water sluggish.

No. 1, A.	No. 3, C.	
20. grains.	20. grains.	Bicarbonate of magnesia.
10. "	10. "	Bicarbonate of lime.
30. "	27. "	Sulphate of magnesia.
2. "	2.5 "	Hydrosulphates of magnesia and lime.
90. "	93. "	Chlorides of magnesium and sodium.
		Sulphate of lime.
153.	154.	Solid contents.
20.6	19.8	cubic inches sulphuretted hydrogen or hydrosulphuric acid gas.

Contents one gallon.

Signed, Your ob't. ser't.,

LAWRENCE REID,

Prof. Chemistry to the N. Y. College of Pharmacy.

The Committee to whom was referred a communication from Dr. Morton, containing observations on Ancient Egyptian Crania, reported in favor of publication.

Observations on a second series of Ancient Egyptian Crania.

Towards the close of the year 1842, Dr. Lepsius, the distinguished head of the Prussian Scientific Commission in Egypt, reopened several very ancient tombs in the vicinity of the Pyramids of Ghezeh. These tombs date with the third and fourth dynasties of Egyptian chronology, as is proved by their inscriptions; but having been the receptacles of wealthy individuals, they were no doubt plundered in very remote times; and whenever succeeding generations have again devoted them to sepulchral purposes, avarice has renewed its desecrations in the search for treasure. Thus, the Hykshos, Persians, Greeks, Romans and Saracens, have probably each in turn violated these tombs; leaving it a question of entire uncertainty, whether the embalmed bodies now found in them belong to the earlier or later epochs of Egyptian history. I make these remarks to show that I do not infer the age of these mummies from the date of the tombs; but at the same time it may be observed,

that in the mere search for plunder there was no occasion to destroy or eject the bodies of the dead; and mutilated as they are, it is possible that some of them *may* have pertained to a very remote age.

My friend Dr. Pickering, writing to me from Cairo about the time of these explorations, observes that Dr. Lepsius expected to find "the veritable remains of the primeval Egyptians; but it was discovered that they had been displaced by *Greeks*, &c., and that there was nothing of this sort older than Psammeticus." (B. C. 550.) The bodies that retained their legends may have been of Greek and other comparatively modern inhabitants of Egypt; but with respect to the seventeen skulls before us, I have no hesitation in declaring, that but two of them could have belonged to persons of Greek or any other Indo-European lineage. The others may have borne Greek inscriptions, but that would not make them Greeks; for the language of the latter people was the compulsory vernacular tongue during most of the Ptolemaic epoch. Moreover, the skulls in question are entirely denuded of bandages and even of integuments; whence it seems evident that no inferences drawn from Greek or other inscriptions could have applied to *them*.

The following is an Ethnographic analysis of this series of crania:

Egyptian form, ...	11
Egyptian form, with traces of Negro lineage,	2
Negroid form, ...	1
Pelasgic form, ...	2
Semitic form, ...	1
	17

Remarks.

1. The *Egyptian* form is admirably characterized in eleven of these heads, and corresponds in every particular with the Nilotic physiognomy, as indicated by monumental and sepulchral evidences in my Crania Ægyptiaca, viz.—the small, long and narrow head, with a somewhat receding forehead, narrow and rather projecting face, and delicacy of the whole osteological structure. No hair remains,

and the bony meatus of the ear corresponds with that of all other Caucasian nations.

Two other heads present some mixture of Negro lineage with the Egyptian, which is expressed in the conformation and expression of the facial bones, more particularly as seen in the greater breadth and flatness of the face, and a stronger development of the upper maxilla.

Of these thirteen crania, eleven are adult, of which the largest has an internal capacity of 93 cubic inches, and the smallest 76, giving a mean of 86 cubic inches for the size of the brain. This measurement exceeds, by only three cubic inches, the average derived from the entire series of *Egyptian* heads in my Crania Ægyptiaca.

The facial angle of the adult heads gives a mean of 82°, the the largest rising as high as 86°, and the smallest being 78°. Two other heads are those of children, in whom the Egyptian conformation is perfect, and these give, respectively, the remarkable large facial angle of 89° and 91°. The mean adult angle is greater than that given by the large series measured in the Crania Ægyptiaca. Is this owing to the fact, that the heads now under consideration belonged to persons of distinction, and probably, therefore, of education and refinement?

These crania, as already observed, are long and narrow, and receding in front; but posteriorly, in the parietal regions they become much broader; the whole occiput is very full, and remarkably projecting; the sides of the cranium are rather flat, and the coronal region long and depressed.

2. The *Negroid* head, as I have elsewhere explained, is a mixture of the Caucasian and Negro form in which the latter *predominates*. Such is the case in the present instance, as even a partially practised eye can readily discover. This head strongly resembles those of two modern Copts in my possession. It gives 81 cubic inches for the size of the brain, and a facial angle of 80. It is remarkable for deep depressions on the lateral surfaces of the parietal bones, apparently caused by the action of the posterior portions of a powerful occipito-frontalis muscle. Among six hundred skulls in my collection, but two present this development in an equal degree; one of these is an Egyptian, the other a Hindoo head.

3. Of the two *Pelasgic* heads, one is perfect, and well characterised in most of its proportions. It has an internal capacity of 93 cubic inches, and a facial angle of 80°. The other head has lost the bones of the face, whence its ethnographic relations are not so obvious; and I have ventured to judge it by its cranial developments. It is internally but two cubic inches smaller than the other.

4. The solitary *Semitic* head, has rather the common Arab, than the Hebrew cast of features. It measures internally 78 cubic inches, and has a facial angle of 79°.

The ages of the individuals to whom these seventeen skulls pertained, may be proximately stated as follows: 5, 7,* 18, 20, 20, 25, 30, 40, 40, 40, 50, 50, 50, 50, 50, 50, 55.

The results derived from this series of crania, sustain in a most gratifying manner, those obtained from the greater collection of one hundred skulls sent me from Egypt, by my friend, George R. Gliddon, Esq., and which have afforded the materials of my Crania Egyptiaca; and without making further comparisons on the present occasion, (for I design from time to time to resume the subject, as facts and materials may come to my hands,) I shall merely subjoin my Ethnographic table from the Crania Ægyptiaca, so extended as to embrace all the ancient Egyptian skulls now in my possession.

Ethnographic Table of one hundred and seventeen ancient Egyptian Crania.

Sepulchral Localities.	No.	Egyptian.	Pelasgic.	Semitic.	Mixed.	Negroid.	Negro.	Idiot.
Memphis,	26	7	16	1	1	1		
Ghiseh,	17	11	2	1	2	1		
Maabdeh,	4	1	1			2		
Abydos,	4	2	1	1				
Thebes,	55	30	10	4	4	5		2
Ombos,	3	3						
Philæ,	4	2	1				1	
Debôd,	4	4						
	117	60	31	7	7	7	1	2

It remains for me to add, which I do with great pleasure, that I am indebted for this second series of Egyptian Crania, to Mr. Wm. A. Gliddon, of Cairo, who, prompted by that extraordinary interest in Egyptian questions which seems inherent in his family, has availed himself of every opportunity for extending our knowledge of the people and the monuments of ancient Egypt.

* The two juvenile heads are of course not used in calculating the *mean* either of the size of the brain or the facial angle.

A letter from Dr. Richard Lepsius, head of the Prussian Scientific Commission in Egypt, was read at the meeting of the 23d of July last, but accidentally omitted in the last number of the Proceedings. It is addressed to Mr. Gliddon, and dated at Khartoon, (junction of the White and Blue Nile,) March 29, 1844. After returning thanks for his election as a Corresponding member of this Society, he concludes his letter with the following highly interesting announcement:

"The most important result of my visit to the Pyramids of Begerawe, and the temples at Ben Naga, Naga and the Wadee e'-Sofra, is, that all these monuments ascend, as an extreme, as far as the times of the Ptolemies; and date, for the most part, about the first centuries of our era. I hasten to examine the Ethiopian monuments of Mount Berkal, which date at least as far back as the seventh century before Christ."

PROCEEDINGS

OF THE

ACADEMY OF NATURAL SCIENCES

OF PHILADELPHIA.

VOL. II NOV. AND DEC., 1844. No. 6.

Stated Meeting, November 5, 1844.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

Specimen of common Salt from Arkansas. Presented by Mr. James Dundas.

The Curators deposited on the table a specimen of the White Ape of Siam, (Hylobates leuciscus?) the skin of which had been presented to the Academy several years since by Dr. Ruschenberger, but only recently prepared and mounted.

Dr. Thomas B. Wilson, of Newark, Delaware, presented a very fine collection of minerals from the counties of Cumberland, Durham, Northumberland, &c., England, consisting of 130 selected specimens, as follows:

Carbonate of lime, Cumberland, (8 var.;) carbonate of lime and pearl spar on gray drusy quartz, do.; carbonate of lime and blende, do.; carbonate of lime on quartz, do.; (6 var.;) carbonate of lime, iron pyrites and pearl spar, do.; arragonite, do.; yellow do. do.; rhomboid carbonate of lime, do.; prismatic carbonate of lime, do.; (2 var.;) striated yellow carbonate of lime, do.; carbonate of lime, carbonate of iron, quartz and fluor spar, Northumberland; carbo-

nate of lime, Durham, (2 var.;) carbonate of lime, quartz, spathose iron and fluor spar, do., (3 var.;) carbonate of lime and silver quartz on fluor spar, do.; lenticular carbonate of lime and quartz on fluor, do.; nail headed carbonate of lime and fluor on spathose iron, do.; nail headed carbonate of lime and pearl spar on drusy quartz, do.; tungstate of lime on quartz, Cumberland; acicular sulphate of lime, Northumberland; prismatic sulphate of lime, do.; selenite, Cumberland; columnar quartz, do.; drusy quartz on flos ferri and pyramidal quartz, do.; cap quartz, do.; brown quartz on specular iron, do.; radiated quartz, do.; shilving quartz, do.; shilving quartz, galena, and blende on gray quartz, do.; cellular quartz, Durham; bitter spar and pearl spar, do.; pearl spar, Cumberland; pearl spar and blende, do.; pearl spar, blende, and gray quartz, do.; lenticular bitter spar, do.; lilac fluor spar, do.; lilac fluor and spathose iron, do.; amber fluor, do.; common fluor, do.; common spar on fluor, Durham; quartz and fluor spar, do.; air bubble on green fluor, do.; emerald fluor, do.; purple fluor, Northumberland; ruby blende, Cumberland; siliceous oxide of zinc, do.; compact calamine do.; (2 var.;) blende on quartz, do., (2 var.;) pseudomorphous blende, do.; cadmiferous blende, Northumberland; sulphate of barytes, Westmoreland, (2 var.;) carbonate of barytes on carbonate of lime, Northumberland; sulphato-carbonate of barytes and becalcareo, do., Cumberland; becalcareo. carbonate of barytes, do.; sulphate of barytes on brown spar, do.; baryto-calcite, do., (2 var.;) transparent prismatic baryto-calcite, do.; stalactite, Westmoreland; nacrite, Cumberland; nacrite and apatite, do.; nacrite and molybdena on quartz, do.; iron pyrites and blende on quartz, do.; iron pyrites and carbonate of lime, Durham; iron pyrites and cubic galena on carbonate of iron, do.; iron pyrites and shilving quartz, Northumberland; carbonate of iron, fluor spar and galena, Durham; carbonate of iron, fluor spar, galena, and silver quartz, do.; carbonate of iron and blende on pseudomorphous quartz, Cumberland; spathose iron and fluor spar, Durham; flos ferri, Cumberland; carbonate of lead, do.; carbonate of lead, Durham; sulphuret of lead, Cumberland; arsenio-phosphate of lead, do.; arsenio-phosphate of lead on blue cupreous carbonate of zinc and quartz, do.; galena and fluor on drusy quartz, Durham; iridescent galena, Cumberland; argentiferous galena on fluor spar, do.; granular galena on fluor spar, do.; dodecahedral galena or quartz, do.; pseudomorphous galena,

Northumberland; murio-arseniate of lead on manganese and quartz, Cumberland; blue cupreous sulphate of lead, do.; diarseniate of lead on quartz, do.; copper pyrites and quartz on sulphate of barytes, do.; copper pyrites, sulphuret of lead and quartz, do.; copper pyrites and pearl spar on galena, do.; emerald copper, do.; green carbonate of copper and calamine, do.; green carbonate of copper on quartz and fluor spar, do.; green carbonate of copper and copper pyrites on quartz, do.; green and blue carbonate of copper on quartz and fluor, do.; green carbonate of copper and carbonate of lime on fluor, Durham; carbonate of copper and quartz, do.; carbonate of copper and phosphate of lead on quartz, Cumberland; fibrous malachite, do.; peacock copper and galena, do.; cobalt bloom, do.; carbonate of manganese, do.; sulphuret of bismuth, do.; phrenite, do.; slickenside, do.; wolfram, do.; mountain wood, do.; fibrous witherite, do.; fibrous epidote and quartz, do.; cronstadite, do.; red hæmatite, Lancashire; witherite, Northumberland; dolomite, Durham.

DONATIONS TO LIBRARY.

American Journal of Science and Arts. Vol. 48. No. 2. October, 1844. From the Editors.

Calcutta Journal of Natural History. Nos. 13, 14, 15, 16; from April 1843, to January 1844. From the Editors.

Memoires de la Société de Physique et d'Histoire Naturelle de Genéve. Vols. 1 to 9 complete, and Vol. 10. Part 1. 4to., with a folio atlas. In exchange.

Plantes nouvelles ou rares d'Amerique. Par M. Moricand. 8^mo. Liv. Geneva, 1844. From the Author.

On some Plants, mostly undescribed, in the H. C. Botanic garden of Calcutta. By Wm. Griffith, Esq., F. L. S. &c. (From the Calcutta Journal of Natural History.) From the Editors of the Calcutta Journal.

Descriptions of Malayan Plants. By William Jack. From the Author.

A letter was read from the Asiatic Society of Bengal, dated Calcutta, 9th June, 1844, acknowledging the reception of some Nos. of the Proceedings of the Academy.

A paper by Dr. Hallowell, describing seven new species of African Reptiles, was read and referred to the following committee: Dr. Wm. Blanding, Rev. J. H. McFarland, and Mr. Haldeman.

Professor Johnson read a continuation of his paper on the methods of determining the calorific power of combustible bodies.

On motion of Mr. Clay it was unanimously Resolved, That the thanks of the Society be tendered to Dr. Wilson for the splendid collection of minerals presented by him this evening.

Stated Meeting, November 12, 1844.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

Specimen of Asterias caput-medusæ, L., from Cuba. Presented by Mr. J. G. Howard.

Mounted specimen of Dicotyle torquatus, (Peccary,) from South America. Presented by Mr. Dennis Lahey, of Philadelphia.

The following donations were announced by the Curators, in exchange.

Cervus nemorivagus, male and female,	Cavia aperia,
Echimys Cayanensis,	Sciurus æstuans,
Mus Brasiliensis,	Vespertilio alecto,
" arvicoloides,	Dasypus tricinctus,
" angouya.	

The Chairman announced to the Society the recent decease, in Switzerland, of our late fellow member Nathan Dunn, Esq., and stated, that in his will, a copy of which was on the table, it would be found that a bequest of $10,000 had been made to this Institution. The Chairman, however,

remarked, that in consequence of a great depreciation in the value of the testator's property having taken place since this will was made, the Academy could scarcely entertain a hope that this magnificent legacy would come into its possession.

Mr. G. Vale, of New York, exhibited a model of an improved globe and celestial sphere of his invention, and entered into a detailed explanation of its construction and the mode of using it.

The instrument was admirably calculated to show the manner in which all the problems on both Terrestial and Celestial Globes may be performed in a simple manner conformable to the real motions of the earth and heavenly bodies.

Stated Meeting, November 19, 1844.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

Eighty species of African Plants of the natural orders Gramineæ, Cyperaceæ, Marantaceæ, Solaneaceæ, Liliaceæ, Melastomaceæ, Combretaceæ, Cinchonaceæ, Labiatæ, Scrophulariaceæ, Leguminosæ and Compositæ.

Also skins of the following African Birds:

Buceros buccinator, Temm.,	Centropus Senegalensis, L.
Pirenestes ostrinus, Viel.,	Turtur erythrophrys, Sw.
Tricophorus ———, (young),	" chalcospilus, Sw.
Picus ———, (young.)	

From the late Dr. Westley Johnson, of Liberia.

Mounted albino specimen of Sciurus striatus, from Chester county, Pennsylvania, and a mounted specimen of Cassicus ———, from South America. Presented by Dr. C. W. Pennock.

A collection of fossils from the carboniferous limestone of Westmoreland county, Pennsylvania. Presented by Dr. Alfred T. King, of Greensburg, Pennsylvania.

DONATIONS TO LIBRARY.

Four sheets of the Map of New York Bay and Harbor. From the U. S. Treasury Department, through A. D. Bache, Esq., Superintendent of the U. S. Coast Survey.

Fauna Peruana, containing "Avium et Mammalium conspectus, quæ in Republica Peruana reperiuntur, et pleraque observata vel collecta sunt in itinere a Dr. J. J. de Tschudi." From the Author.

Also the following works from the same Author:

Ueber die Urienwohner von Peru. Von Dr. J. J. von Tschudi.

Diagnosen einiger neuer Peruanischer Vögel. Von Dr. Von Tschudi.

Classification der Batrachier mit berucksichtegung der fossilien thiere dieser abtheilung der Reptilien. Von J. J. Tschudi. 4to. Neuchatel, 1838.

A letter was read from Dr. Tschudi, dated Hamburg, September 18, 1844, accompanying the above donation of his works.

Professor Johnson read a continuation of his paper on the methods of determining the calorific powers of combustible bodies.

Dr. Morton exhibited an interesting and numerous collection of fossil bones of the Mosasaurus, from New Jersey, consisting of 38 nearly perfect vertebræ, a perfect tooth, several fragments of other bones, and perhaps the most remarkable of all, a perfect *coprolite*, or portion of fossil excrement of this animal.

These had all been recently obtained from the ferruginous sand near Mount Holly, New Jersey, and were presented to Dr. Morton by Mr. Wm. L. Bispham of this city.

Dr. Morton then proceeded to make some brief observations on the general characters of the European Mosasaurus,

and pointed out some differences which a comparison of the specimens on the table with the descriptions of that species would seem to indicate.

These differences he believed to be sufficient to authorize a new specific name, and he therefore proposed that of M. *occidentalis*.

In the absence, however, of more positive information on this subject than he at present possessed, he stated that he preferred that this specific designation should be considered as merely provisional.

Meeting for Business, November 26, 1844.

VICE PRESIDENT MORTON in the Chair.

The Corresponding Secretary read his Report for the last month.

A note was read from Mr. J. Le Conte, of New York, desiring certain numbers of the Proceedings of the Academy, which had been lost or mislaid by him.

On motion, the desired numbers were ordered to be transmitted to him.

On motion of Mr. Phillips it was Resolved, That a complete copy of the Proceedings be transmitted to Dr. J. J. von Tschudi, of Hamburg.

The following gentlemen were elected members:

George M. Keim, Esq., of Philadelphia.

Fernando de Cuesta, Esq. . do.

And

Jeffries Wyman, M. D., of Boston, was elected a Correspondent of the Academy.

Descriptions of New Species of Coleoptera of the United States.

By F. E. MELSHEIMER, M. D.

(*Continued from page* 118.)

Lamellicornia, Latr.

ONTHOPHAGUS, Latr.

1 O. *castaneus*. Testaceous; head armed with two long erect horns.—3½ l. long. Pennsylvania.

Light chestnut, clothed with very short ochraceous hairs; head with the front profoundly and distantly punctured, with two long erect horns between the eyes, and with the clypeus almost impunctured, reflexed and slightly repand at tip; glossy: antennæ pale ochraceous; thorax densely and profoundly punctured, moderately excavated each side before, and lobate in the middle; obtusely grooved behind the middle: elytra each with six fine striæ, interstices finely punctured: pygidium with large, profound and vicinal punctures: beneath and feet rufo-piceous, with the anterior pair of tibia dusky. The ♀ differs from the ♂ in having the thorax of dark-green, the head, as in common, with two transverse ridges in place of the horns, and the clypeus densely transversely wrinkled.

2. O. *niger*. Black; thorax with a greenish reflection.—2½ l. long. Pennsylvania.

Black: head profoundly and distantly punctured, with two small tubercles between the eyes; clypeus piceous, entire, rounded and reflexed at tip, and with a short, transverse, elevated line each side at base; thorax numerously and profoundly punctured, slightly excavated each side before, and slightly lobate in the middle, with the lobe feebly concave in the middle; dorsal groove obsolete behind the middle; black, with a greenish reflection: elytra finely striate with the interstices finely punctured; pygidium punctured as in the preceding species: venter black, opake: pectus pitchy-black: feet pitchy-chesnut.

3. O. *rhinoceros*. Black; elytra maculate with fulvous; head with an erect horn.—4½ l. long. Pennsylvania.

Scarabæus nuchicornis, Melsh. Catal.

Black; head with a long erect horn on the vertex, being cylindric towards the tip and flattened and dilated at base; profoundly and distantly punctured, each puncture furnishing one or two rufous hairs; clypeus with the margin reflexed, and faintly emarginate at apex; thorax much punctured, and clothed with short rufous hairs; a fine glabrous dorsal line; anterior edge slightly retuse: elytra fulvous, confluently maculate with black, finely striate, interstices with irregular series of minute and distant punctures; hirsute like the thorax: pygidium punctured as in castaneus: beneath and feet black, glossy: pectus and under part of the head with long rufous hairs. The ♀ differs from the ♂ in being destitute of the occipital horn, instead of which the head is armed with two prominent transverse ridges, of which the anterior one is arcuated; the clypeus is also very rough with punctures. Distinct from the O. *nuchicornis*, Fabr.

4. O. *protensus*. Green; thorax anteriorly produced in a flat biped projection; elytra at base and apex testaceous.—4 l. long. Pennsylvania. Rare.

Form, size and sculpture as in O. *latebrosus*, Fabr. Clypeus green, sparsely and profoundly punctured, with a prominent acute tubercle each side before, margin ? (destroyed) thorax retuse each side in front, with a broad bifid central lobe, projecting over the head; dorsum obsoletely channelled behind; punctured, and clothed with short rufous hairs; green: elytra faintly striate, the interstices minutely punctured; green, with the base and apex irregularly testaceous: pygidium punctured, superior half rufo-testaceous: beneath and feet green. Of this species there is only a single specimen in our collection.

O. *latebrosus*, Fabr.—*hecate*, Panz. The ♂ of this species varies much in the length of the thoracic central lobe, being in some specimens only half the common length, and in others it is still less, being represented only by two small tubercles. Fabricius described a ♂, and Panzer figured and described a ♀; the name of the latter having the priority ought to be adopted.

APHODIUS, Illig.

1. A. *badipes*. Black; feet chestnut-brown; clypeus emarginate.—3½ l. long. Pennsylvania.

Aphodius oblongus, Say, Journ. Acad. N. S., III. p. 215.

Scarabæus ———, Melsh. Catal.

Oblong, black, glossy: clypeus emarginate at apex, tuberculate each side of the emargination; finely and closely punctured, particularly on the margin, which is often piceous; a transverse arcuated impressed line between the eyes; thorax irregularly and profoundly punctured: elytra with profound punctured striæ, the interstices convex, minutely and remotely punctured; lateral margins often obsoletely reddish-brown: venter and feet pitchy-castaneous. Distinct from the A. *oblongus*, Illig.

A. *lutulentus*. "Black, somewhat glossy, minutely punctate, elytra obscurely striate, tarsi testaceous." Hald. Proceed. Acad. Nat. Sc. Philad. I. 304.

Var. Elytra and feet dull rufous, with the striæ of the former almost obsolete; edge of the clypeus piceous. *Scarabæus opacipennis*, Melsh. MS.

2. A. *pensvallensis*. Black; elytra truncate at apex, dusky testaceous; posterior feet rufous.—4 l. long. Pennsylvania. Rare.

Scarabæus pensvallensis. Melsh. Catal.

This is certainly only a mere local variety of A. *erraticus*, Linn., and may be referred to Mulsant's subgenus *Colobopterus*, Var. *nebulosus*. The present native specimen of the species, and the only one ever in our collection, is stated to have been found in Penn's Valley ?

3. A. *truncatus*. Black; thorax deeply and coarsely punctured; clypeus mutic, emarginate.—3 l. long. Pennsylvania.

Scarabæus cænosus, Melsh. Catal.

——— *truncatus*. " "

Black, convex: clypeus much and deeply punctured, with the edge piceous, angulate and somewhat strongly emarginate in the middle: thorax profoundly and much punctured on the middle and confluently each side: scutel small, with sparse punctures: elytra crenate-striate, the interstices flattish and impunctured: venter dark reddish-brown: pectus black: feet pitchy-chestnut-reddish. Readily distinguished from other native species by its strongly punctured thorax.

4. A. *copronymus*. Yellowish-rufous, minutely punctured; clypeus mutic, emarginate at tip.—2 l. long. Pennsylvania.

Scarabæus copronymus, Melsh. Catal.

Oblong, convex, yellowish-red, shining: clypeus very minutely punctured, with the apex widely emarginate, behind the emargination with a small obsolete tubercle; frontal suture distinct: thorax very minutely and sparingly punctured, with the disk and margins almost impunctured; base obtusely rounded: scutel small, dusky, impunctured: elytra minutely punctate-striate, the interstices flattish, impunctured; suture somewhat dusky: feet and beneath paler than above.

5. A. *stercorosus*. Head and thorax dark reddish-brown; elytra pale rufous, clouded with dusky, clypeus slightly emarginate.—2 l. long. Pennsylvania.

Scarabæus stercorosus, Melsh. Catal.

Form and size of *copronymus*. Clypeus large, almost semi-circular, finely and somewhat densely and equally punctured, dark reddish-brown, with the margin rufo-piceous and slightly emarginate at tip; mutic: palpi and antennæ rufo-piceous: thorax minutely and not crowdedly punctured, with the middle almost impunctured; dark reddish-brown, with clearer places on the lateral margins: scutel moderate, piceous, impunctured: elytra pale rufous, clouded with dusky, striate, with the striæ obsoletely crenate or punctured, the interstices flattish and impunctured: beneath and feet rufo-piceous.

6. A. *rusicola*. Dark reddish-brown, punctulate; clypeus tri-tuberculate, slightly emarginate at apex.—2¼ l. long. Pennsylvania.

Scarabæus rusicola, Melsh. Catal.

Short, wide, robust, convex, dark reddish-brown, shining: head very finely punctured, with the clypeus confertly wrinkled and punctulate, tri-tuberculate, the margin rufous or piceous, with the edge angulate and widely and faintly emarginate at apex: antennæ and palpi rufous: thorax much and distinctly punctulate: scutel black, sparsely punctured: elytra crenate-striate, the interstices somewhat flattish, with few very minute scattered punctures: abdomen yellowish: pectus dark, and feet light castaneous.

7. A. *aterrimus*.—deep black: thorax sparsely punctured; clypeus tri-tuberculate, emarginate at apex.—2¼ l. long, Maryland.

Deep black, shining: clypeus black-piceous, sparsely punctulate, rather angulose at the margin; disk with a fine transverse line or ridge, studded with three obsolete tubercles; margin depressed, with the edge slightly emarginate at tip: thorax ample, with the angles obtuse; punctured, somewhat grossly and deeply, sparsely at the sides, and still more distantly on the disk: scutel black, sparsely punctured: elytra profoundly crenate-striate, interstices rather convex: beneath black: feet pitchy-brown, with the tarsi rufous. Remarkable for the few punctures on the thorax.

8. A. *imbricatus*. Black, ferruginous granulate.—2 l. long. Pennsylvania.

Oblong: clypeus mutic, emarginate at tip, somewhat convex in the middle, minutely and confertly punctured, black, with the margin rufous, or piceous: thorax short, widely and somewhat profoundly emarginate before, with the anterior angles broad and obtuse; base obtusely rounded; sides feebly rounded; posterior angles subrectilinear; black, densely covered with ferruginous or dirty squamulæ or rather granules: scutel small: elytra crenate-striate, the interstices narrow and not convex; less densely squamulose than the thorax, with

numerous short hairs; black: beneath black: feet dark reddish-brown. It is the *Scarabæus imbricatus* of Melsh. Catal.

9. A. *maculipennis*. Black; elytra testaceous, maculate with black; clypeus emarginate.—2¼ l. long. Maryland.

Oblong, black, shining: clypeus obsoletely trituberculate, pitchy-black, strongly rugulose, with the edge angulate and strongly retuse at apex: thorax punctured, punctures on the disk obsolete, towards the lateral margins, fine, dense and distinct; base obtusely rounded, with the sides slightly rounded; posterior angles subrectilinear: scutel moderate, piceous, impunctured; elytra testaceous, with a large lateral spot, two or three small ones behind the base and before the apex, black; suture piceous; obviously crenate-striate: beneath black: feet chestnut-piceous. Referable to Mulsant's subgenus, *Melinopterus*.

OXYOMUS, Eschsch.

1. O. *gracilis*. Cylindric, black; clypeus slightly emarginate; elytra sulcate; feet testaceous.—1¼ l. long. Pennsylvania.

Slender, cylindric, black; clypeus emarginate at apex, minutely and densely punctured, black, with the edge obsoletely rufous or piceous: elytra sulcate, sulci feebly crenate, the interstices narrow; somewhat opake: feet castaneous, with the tarsi lighter. Belongs to the subgenus *Pleurophorus*, Mulsant.

2. O. *alternatus*. Fuscous or blackish; four first interstices of the elytra alternating in elevation.—2¼ l. long. Pennsylvania.

Size and form of *Aphodius imbricatus*, Melsh. Catal. Clypeus emarginate at apex, finely and confertly punctured, ashy-brown: antennæ testaceous: thorax altogether formed as *imbricatus*, finely and confertly punctured, obliquely and very faintly indented each side of the middle, at base with an obsolete commencement of dorsal furrow; ashy-brown, with the anterior edge dull rufous; scutel small: elytra feebly striate, with the four first interstices alternating in elevation, four lateral ones equal; blackish-brown, opake: beneath and feet black with the tarsi lighter.

TROX, Fabr.

1. T. *striatus*. Black, glossy; elytra punctate-striate, with the interstices glabrous; thorax sub-equal, with the sides entire.—3¼ l. long; 1¾ l. wide. Pennsylvania.

Trox striatus, Melsh. Catal.

Above glossy black or piceous: head densely punctured and transverse-rugulose, not tuberculate, with the clypeus obtusely rounded and slightly reflexed at apex: thorax numerously and profoundly punctured, with the lateral margins entire, slightly rounded, not broadly depressed; angles acute, with the posterior feebly excurved; dorsal groove terminating in an orbicular indentation behind the anterior margin; a small and very obtuse indentation each side of the middle; anterior margin depressed from the angles to near the middle; elytra profoundly punctate-striate, the interstices not tuberculate, nor tufted with hairs, but simply finely and distantly punctured and somewhat transverse-rugulose: feet blackish piceous.

2. T. *variolatus*. Black-fuscous, granulated; elytra faintly striate, alter-

nate interstices with tufts of hairs; thorax inequal, entire,—3¼—3½ l. long. 2—2¼ l. wide. Pennsylvania.

Trox variolatus, Melsh. Catal.

Black-brown, densely covered with minute granules: head with two obtuse tubercles, tufted with ferruginous scaly hairs; clypeus acutely rounded at apex and not reflexed: thorax inequal; lateral margins broadly depressed, with the edge entire, and fringed with scaly, ferruginous hairs; medial groove wide, shallow, hardly interrupted in the middle, contracted before and fringed each side as the lateral edges, an obsolete narrow groove each side of the dorsal one, having on the middle near its outer side a small conic tubercle; anterior edge fringed, except in the middle, as the lateral edges; posterior angles subacute, anterior ones acute: elytra with alternate rows of oblong tufts of short, scaly, ferruginous or black hairs, spaces each with two faint striæ, and sparse minute granules: beneath and feet colored as above.—Allied to T. *arenarius*, Fabr., and has been considered by some as a variety of that species, but it differs from it, apart of other characters, in having the elytral striæ impunctured. It may perhaps be the *serrulatus* of Pal. de Beauv.

BOLBOCERUS, Kirby.

B. *cornigerus*. Red-brown; head armed with a long filiform horn; thorax greatly unequal; elytra crenate-striate.—5 l. long, 3 l. wide. Pennsylvania?

Scarabæus cornigerus, Melsh. MS.

Reddish-brown: head blackish, scabrous; clypeus rounded, marginate, with a short longitudinal raised line at tip, base armed with a long filiform smooth recurved horn; thorax very unequal, strongly carinate in the middle, the carina grooved towards the base for the occasional reception of the apical portion of the horn; each side of the carina with a wide and profound concavity, having its outer elevated narrow edge abbreviate a little behind the anterior margin; lateral edges reflexed; posterior angles obtusely rounded, anterior ones subacute; lateral margins and concavities sparsely and profoundly punctured: scutel subcordate, concave at base; obsoletely punctured: elytra crenate-striate, interstices convex: anterior tibiæ quadri-dentate, with the apical tooth widely crenate.—Only one specimen of this species in our collection.

BOTHYNUS, Hope.

B. *castaneus*. Castaneous; clypeus truncate and faintly bidentate at apex.—5 l. long, 3½ l. wide. Maryland.

Short-ovate, convex, light chestnut, glossy: head darker than the thorax, roughly punctured, posteriorly impunctured; clypeus truncate at apex, with the edge slightly elevated, more distinctly at the posterior angles, anterior lateral angles with a small, reflexed, obtuse tooth: palpi and antennæ rufo-piceous: thorax glossy, sparsely and profoundly punctured, punctures most numerous before the middle; a small indentation behind the anterior angles,

which are acute, posterior angles rounded; a very faint, almost invisible medial line: scutel almost triangular, rounded at tip, impunctured, glossy, and somewhat concave in the middle: elytra obtuse punctate-striate, punctures large; lateral margins, behind the middle, slightly dilated: pygidium minutely and densely punctured and wrinkled: beneath and feet lighter colored than above, the latter formed altogether as in *cuniculus*: pectus sparsely and profoundly punctured. Resembles much in its form *Geotrupes cuniculus*, Fabr., but it differs from that species in being destitute of the small indentation and mucro on the middle of the anterior margin of the thorax, in having the thorax less punctured, in the scutellum being longer, narrower and impunctured, and in being considerably less pilose beneath.

Scarabæus splendidus. "Mutic, green, shining, elytra striate." Fabr. Syst. Eleuth. i. p. 26, No. 15.

Var. Cyaneous; feet dark violaceous.

Geotrupes miarophagus, Say. Journ. Acad. Nat. Sc. iii. 211. Melsh. Catal. No. 16. This species is more robust than either *splendidus*, Fabr., or *excrementi*, Say. It is generally deep black, with but a very slight tinge of blue: the medial thoracic groove is wider and more strongly defined than in *splendidus* and *excrementi*, in the latter it is sometimes wanting. In *blackburnii* the elytral striæ are almost impunctured, but in *miarophagus* they are profound and crenate, more strongly and entirely than in *splendidus* or *excrementi*.

Melolontha punctata. Testaceous, elytra with three distant fuscous punctures. Fabr. Syst. Eleuth. ii. 166, No. 28.

Var. Immaculate.—Rare.

ANCYLONYCHA, Dejean.

A. *pruinosa*. Fuscous; head and thorax strongly punctured, glabrous; elytra pruinose.—8 l. long, 5 l. wide. Alabama.

Short, wide; head blackish, glabrous, confluently rugosely punctured; with the biarcuated transverse line distinct; clypeus transverse, punctured as the head, with the edge reflexed and emarginate at apex: antennæ ten-jointed, rufo-piceous, clava ochraceous: palpi color of the antennæ, with the last joint of the maxillary sublanceolate: thorax short, transverse, glabrous, color of the head, confluently punctured, punctures large, interspersed with shining rugæ; anterior edge slightly emarginate; base feebly bisinuate; sides dilated in the middle, the edges distinctly denticulate and fringed with very few hairs; angles subacute; scutellum obtuse-triangular, glabrous, piceous, coarsely and profoundly punctured: elytra more than three times longer than the thorax, conjointly regularly rounded at apex; densely and very finely transversely wrinkled, dull chestnut, whitish-blue sericeous when viewed from before; sutural and marginal lines perceptible, the two intermediate ones obsolete: pygidium chestnut-red, rugosely punctured, glabrous: feet and venter similarly colored, the latter subglabrous, the former with the tibiæ and tarsi piceous: pectus clothed with short, ochraceous, prostrate hairs.

2. A. *rugosa*. Castaneous, glabrous above; head and thorax strongly and confluently punctured; elytra confluently rugose.—9 l. long, 5½ l. wide. Virginia.

Form and size of M. *hirticula*, Knoch. Head and thorax dark chestnut-brown, glabrous, the latter with the front feebly convex, asperous with confluent punctures, biarcuated transverse line distinct; clypeus with the punctures rather larger than those of the other parts of the head, edge slightly reflexed and moderately emarginate at tip: antennæ and palpi yellowish-rufous, with the clava of the first paler: thorax transverse; short, the sides dilated in the middle, the edges denticulate, with a single hair in each incisure; base almost rectilinear, apex slightly emarginate; angles subacute; surface covered with large, crowded punctures, with their edges generally narrow, polished: scutel glabrous, with large punctures on the sides: elytra dull chestnut-red, basal region darker; almost truncate at apex, with the sutural angles feebly toothed; surface confluently wrinkled, with sparse obsolete punctures on the scutelar region, humeral tubercles and apical callorities: pygidium sparsely punctulate, glabrous: venter lighter colored than the elytra, with sparse piligerous punctures: postpectus dark-brown, densely punctured, and clothed with yellowish prostrate hairs: feet pitchy chestnut; nails equal, each with a stout tooth in the middle.

ANOMALA, Meg.

1. A. *dichroa*. Dull castaneous; elytra testaceous.—5½ l. long, 3 l. wide. Virginia.

Head and thorax dull chestnut, the former finely wrinkled and densely punctulate, with the transverse line fine; clypeus strongly reflexed and obtusely rounded at apex: antennæ rufous, clava and palpi testaceous; eyes large, black, very glossy; thorax finely and not densely punctured; base bisinuate, with the posterior angles obtuse, anterior ones subobtuse; sides moderately rounded; a small dusky indentation each side near the middle of the submargin: scutel color of the thorax, much and profoundly punctured: elytra testaceous, obtusely crenate-striate, the interstices impunctured: pygidium color of the thorax, rugosely punctured: beneath and feet similarly colored; tarsi darker, piceous: pectus clothed with long rufous pile: claws subequal, the outer ones of the two anterior pairs slightly bifid.

2. A. *undulata*. Testaceous; two common, undulated fasciæ on the elytra, fuscous.—4½ l. long, 2½ l. wide. Virginia.

Head rufous, densely rugose-punctured; transverse line fine; clypeus with the edge reflexed, and almost truncate at apex: thorax less densely punctured than the head, with the posterior angles obtuse, anterior ones acute; a very faint dorsal groove; brown, strongly tinged with greenish; lateral margins broadly testaceous: scutel testaceous, sides piceous; profoundly and distantly punctured: elytra testaceous, punctate-striate, the interstices convex, with very minute scattered punctures; locality of the two first striæ, which are effaced, densely punctured; two common, undulated, fuscous or blackish fasciæ, confluent on the

suture, the anterior one is placed a little before the middle, and is not interrupted at the lateral margins, the posterior band is located before the apex, and does not attain the lateral edges: beneath and feet testaceous; tarsi reddish-brown piceous, with the anterior tibiæ bi-dentate.

3. A. *pinicola*. Greenish-black; elytra dark reddish-brown.—3½—4½ l. long, 2½—2½ l. wide. Pennsylvania.

Melolontha pinicola, Melsh. MS.

———— *strigata*, " Catal. 86.

Var. Testaceous; disk of the thorax greenish-brown. M. *lateralis*, Melsh. Catal. 85.

Head greenish-black, sometimes with a purple reflection; transverse line fine; profoundly punctured, with the front and clypeus densely wrinkled, the latter often testaceous, truncate at tip, the edge reflexed: antennæ and palpi testaceous, the former with the club black or dark brown: thorax color of the head, confluently and profoundly punctured, and with numerous irregular, polished wrinkles; posterior angles subrectilinear, anterior ones acute: scutel color of the thorax, profoundly and coarsely punctured: elytra dusky reddish-brown-piceous, crenate-striate, interstices convex, of which four or five are more elevated than the others, minutely and distantly punctured: pygidium color of the abdomen, transverse-rugulose, and with sparse cinereous hairs: beneath and feet color of the thorax, strongly punctured; feet mostly piceous, with the anterior tibiæ bidentate; ♀ Generally testaceous, the interstices of the elytra less raised than in ♂, and more numerously punctured. Very abundant in Pennsylvania; occurs in July, on the Red or Pitch Pine.

HOPLIA, Illig.

1. H. *monticola*. Head, thorax and scutel blackish or dark brown; elytra dull red-testaceous.—3½ l. long, 1½ l. wide. Pennsylvania.

Melolontha monticola, Melsh. Catal.

Elongate: head coarsely punctured, clothed with short ochraceous hairs; clypeus dull rufous, somewhat elongate, with the margin reflexed, and truncate at tip, an obsolete transverse line at base: antennæ rufous: palpi yellowish: thorax dusky reddish brown, verging to blackish, finely and transversely wrinkled, clothed with short rufous hairs, and sprinkled at sides and base with small whitish scaly ones: scutel black, densely punctulate: elytra more than twice as long as the thorax, dull castaneous, densely and finely grained, clothed with short rufous hairs; two obsolete longitudinal raised lines near the middle: pygidium and venter castaneous, the former clothed like the elytra, the latter covered with small whitish scaly hairs: pectus brown: feet chestnut-red, sprinkled with whitish scales.

2. H. *tristis*. Blackish, pilose; beneath densely covered with white scales.—4½ l. long, 2½ l. wide. Virginia.

Head rugose-punctate, villose, with the edges of the clypeus slightly reflexed, and almost truncate at apex: thorax with the sides dilated in the middle and

slightly excurved near the posterior angles; finely and confertly, dirty villose: scutel densely punctured: elytra minutely and densely punctured, and densely clothed with ashy-brown prostrate hairs; three or four irregular striæ, abbreviated before the apex: pygidium, beneath and feet densely covered with white scales.

3. H. *helvola*. Head and thorax dusky; elytra yellowish-red; densely covered with yellowish scales.—3½ l. long, 2 l. wide. Virginia.

Head pilose, with the margin of the clypeus reflexed: antennæ rufous, with the clava dusky: thorax slightly dilated in the middle of the sides; densely clothed with small yellowish scales: scutel color of the thorax: elytra yellowish-red, covered with numerous linear yellowish scales: pygidium and venter reddish-brown, clothed with greenish silvery scales: pectus dark brown, densely decked with green silvery scales: feet dusky reddish-brown.

Buprestidæ.

DICERCA, Eschsch.*

1. D. *dubia*. Brassy-brown above; elytra with many small, quadrate, elevated black spots; beneath dull cupreous.—9 l. long, 3½ l. wide. Pennsylvania.

Brassy-brown above: head coarsely shagreened; mouth green; eyes pale brown: thorax somewhat dilated at the sides, with a punctiform impression before the scutel; roughly shagreened and profoundly punctured; medial space polished and punctured; scutel small: elytra punctate-striate, with numerous irregular, elevated, polished, black spots, of which some are quadrate, interstices punctured, shagreened or transversely wrinkled; tips much narrowed, elongated, truncate, with a minute tooth at the inner angle: beneath roughly punctured: pectus canaliculate: abdomen (♂) emarginate at tip: feet roughly punctured, cupreous, with a green reflection. Differs from *divaricata*, Say, which it much resembles, in being longer, in being differently formed at the sides of the thorax, and in the tips of the elytra never or but slightly divaricating. Perhaps B. *acuminata*, Pallas.

2. D. *auricha!cea*. Brassy-yellow, punctate; pectus villose.—9 l. long, 3½ l. wide. Virginia.

Form and size of *dubia*. Above brassy-yellow, tinted with greenish-cupreous, shining: head rough with confluent, irregular, longitudinal polished rugæ; labrum broad, transverse, greenish-golden, emarginate at apex, roughly punctured; eyes remote, brown; antennæ golden, shining: thorax short, transverse, slightly emarginate at apex, feebly bisinuate at base, with the sides slightly rounded in the middle; posterior angles faintly excurved, acute; surface coarsely and rugosely punctured each side of the middle, with the disc polished and less densely punc-

* For want of access to Laporte & Gory's work on the BUPRESTIDÆ, I have doubtless introduced species in the following descriptions, already described and figured in that work.

tured than the sides; medial space slightly impressed before and behind; an obsolete fossula each side of the middle: scutel orbiculate: elytra subequal, shagreened and punctured, punctures placed in series from the suture to near the middle, with two or three entire subsutural striæ; sparse, small, polished, blackish elevations; tips short, truncate, rich cupreous, slightly divaricating; epipleuræ green; beneath and feet golden cupreous, tinged with greenish: pectus grooved, white villose anteriorly: intermediate tibiæ with the tubercle on the inner side prominent: venter (♀) emarginate at tip.

3. D. *parumpunctata*. Brassy-brown above, shagreened and punctured, beneath dull cupreous; apex of elytra truncate.—8 l. long, 3 l. wide. Pennsylvania.

Dicerca parumpunctata, Harris, MS.

Body above somewhat arched, brassy-brown, shagreened, slightly glossy: head shagreened, sparsely punctured, covered with prostrate hairs, slightly impressed on the vertex; labrum golden; eyes glaucous; thorax slightly inequal; sides obtusely rounded, with the lateral margins to near the disk roughly shagreened and punctured, dorsal space polished and irregularly punctured: a small round indentation before the scutel: elytra punctate-striate, with the striæ obsolete at the sides and from the middle to the apex; interstices punctured, most distinctly towards the base and suture; irregular, elevated black spots and short lines, more numerous at the sides and apex than on the scutellar region; tips abruptly narrowed, not much elongated, truncate, with a minute tooth at the inner angle; beneath pubescent, very roughly shagreened: feet cupreous glossy, roughly shagreened: pectus grooved: abdomen (♂) emarginate at apex.

4. D. *chrysea*. Dark golden above, beneath cupreous, glossy, roughly shagreened.—7—8 l. long, 2¼—3¼ l. wide. Pennsylvania.

Buprestis chrysea, Melsh. Catal.

Dark golden above: head rough with elevated black spots and irregular golden rugæ: labrum green; thorax somewhat roughly shagreened, each side of the middle broadly and strongly indented, and with two or three large, elevated, glossy black spots; medial space indented before and behind, with the margins and division of the indentations glossy, black and distantly punctured; sides abruptly dilated in the middle; posterior angles acute: scutel transverse, black: elytra greenish cupreous, granulate or shagreened, with several series of large punctures, and with sparse, elevated, glossy black spots; tips narrowed, short, almost truncate: beneath bright cupreous, roughly punctured and rugose: pectus grooved, but not deeply: epipleuræ tinged with greenish: abdomen emarginate in the one sex, tridendate in the other: feet bright cupreous, roughly punctured.

5. D. *indistincta*. Brassy-brown, varied with dark golden; elytra with rows of elevated black spots.—7¼ l. long, 2¼ l. wide. Pennsylvania.

Buprestis maculata, Melsh. Catal. 999.

——— *cuprea*, " " 1004.

Brassy-brown, finely shagreened and punctured: head punctured, rough with

wrinkles and sparse polished elevations; sparsely clothed with fine short, cinereous hairs; eyes blackish, varied with pale brown: thorax almost equal, with the sides subrectilinear, slightly rounded before the middle; posterior edge subbisinuate; surface, punctured and polished in the middle, punctured and shagreened towards the sides: a punctiform impression in front of the scutel, an obsolete oblong one behind the middle of the anterior margin: elytra finely shagreened, with three or four widely interrupted, elevated, polished black lines, interruptions dull golden and roughly punctured; tips narrowed, short, bidentate: beneath shining, cupreous, roughly punctured: pectus grooved and ashy pilose in the middle: abdomen emarginate at tip in the one sex and tridentate in the other: feet dull cupreous, punctured.

6. D. *molitor*. Dull brassy, bright cupreous beneath; elytra with numerous, irregular, polished elevations; a transverse glabrous line between the eyes.—7½ l. long, 3 l. wide. Pennsylvania.

Dull brassy above, frequently farinaceous: head uneven, with glabrous elevations; a somewhat angular transverse elevated glabrous line between the eyes; cranium rugosely punctured: thorax finely shagreened, with a slight dorsal groove, the margins of which are glabrous, black and remotely punctured; an elevated longitudinal glabrous line each side of the dorsal groove, and many irregular elevations towards the lateral margins and posterior angles; sides, a little before the middle, strongly dilated and deflexed: elytra finely shagreened, with numerous irregular, elevated black lines and spots: tips narrowed, strongly bidendate: feet and beneath bright cupreous, roughly punctured: pectus grooved, but not deeply.

7. D. *impressifrons*. Brassy-brown; front concave; elytra punctate-striate, with the tips bidendate.—8 l. long, 4 l. wide. Pennsylvania.

? *Buprestis aenea*. Melsh. Catal.

Head shagreened, concave, with a transverse, raised, glabrous cranial line; dull cupreous or brassy: thorax inequal, shagreened or rugosely punctured; polished and punctured in the middle, with a row of three or four elevated, polished, black spots each side between the middle and submargin: a profound triangular impression in front of the scutel, and a very shallow oblong one behind the middle of the anterior margin: color of the head: scutellum small, linear, transverse: elytra punctate-striate, punctures large, deeply impressed, the interstices finely shagreened; color of the thorax, with small, sparse, elevated, sublinear, polished black spots; tips short, bidendate: beneath and feet dull cupreous, rugosely punctured: abdomen at apex emarginate (♂), tridendate (♀): pectus grooved.

8. D. *ferrea*. Brassy-brown above, profoundly rugose punctured; thorax with a glossy dorsal line.—7 l. long, 2½ l. wide. Virginia.

Brassy-brown above: head slightly impressed, rugosely punctured; eyes yellowish brown: thorax equal, confertly rugose-punctured; medial space glossy, black, each side of which, at the anterior margin, with a small black, polished spot, and a similar one each side, at the posterior margin; posterior angles recti-

linear: scutellum transverse, concave: elytra punctate-striate, with the four first striæ entire, the interstices rugosely punctured, and with rows of glossy oblong-quadrate spots; lateral submargins transversely rugulose and with irregular, elevated glossy spots and short lines; tips narrowed, short, bidendate; feet and beneath dull cupreous, rugosely punctured: pectus slightly canaliculate.—Received a female specimen, and the only one in my collection, from Professor Haldeman.

Buprestis punctulata, Swartz, Shoenh.

B. *transversa*, Say. Specimens of this species occur which have scattered elevated lines on the elytra. Say's character of this species: "a somewhat elevated oblique line at the posterior angles,"—of the thorax—is frequently wanting.

9. D. *consobrina*. Brassy-brown above; elytra striate-punctate.—7 l. long, 3 l. wide. Virginia.

Form and size of *transversa*, Say. Head dull cupreous, densely rugulose, slightly indented on the front, with a transverse interrupted polished line between the eyes; antennæ obtusely serrate, rich cupreous; thorax transverse, slightly emarginate at apex, feebly bisinuate at base, where it is narrower than the base of the elytra; posterior angles acute; sides rectilinear near the base, strongly dilated beyond the middle; dull cupreous, densely granulate; four longitudinal, black, polished lines, the intermediate two entire, the outer ones interrupted before the middle, or before an oblique fossula, and appearing slightly again at base; a narrow polished marginal line, originating at the tip of the posterior angle and terminating in the middle of the lateral dilatation: scutel transverse, black: elytra brassy-brown or black, densely granulated, with series of large, remote punctures and many irregular linear black polished elevations; tips short, entire; feet and beneath cupreous, shining, rugosely punctured; postpectus canaliculate. Resembles somewhat *transversa*, Say, but can be distinguished from that species by its more inequal surface of the thorax and elytra, and by the stronger dilatation of the sides of the thorax.

10. D. *gracilipes*. Dark brassy-brown; thorax transverse-quadrate; feet slender.—5 l. long, 1¼ l. wide. Pennsylvania.

Slender, subcylindric, dark brassy-brown above: bright cupreous, roughly shagreened; a transverse arcuated glossy line between the eyes, which are black-brown; thorax transverse, with the sides rectilinear, the apex truncate, and the base slightly bisinuate; an obvious entire dorsal furrow; rugosely punctured: scutel obtuse triangular: elytra faintly striate, with about four or five longitudinal, raised lines, the interstices rugose-punctulate; a distinct cupreous impressed spot a little before the middle, and an obsolete double one behind the middle; sides parallel from the base to the apical curve; tips much narrowed, feebly bidendate: feet and beneath bright cupreous, rugosely punctured; tibiæ long, slender: venter almost rounded at tip: pectus feebly canaliculate. This species is distinguished from all the preceding by its slender and somewhat cylindrical form. The sculpture of the elytra resembles those of a *Chrysobothris* but they are entire at the lateral edges, and not serrated.

BUPRESTIS, Linn.

B. *inconstans*. Black, punctured; elytra striate, maculate with fulvous.—8 l. long, 3¼ l. wide. Pennsylvania.

Black above: head confertly and profoundly punctured, slightly longitudinally indented on the cranium; a fulvous spot on the inner margin of the eyes; labrum and mouth yellow-testaceous: thorax punctured, punctures numerous and profound, towards the lateral margins confluent; dorsal space narrow, impunctured; base sinuous; posterior angles slightly fulvous: scutellum subcordate: elytra striate; striæ finely punctured, the interstices with series of profound punctures; five or six irregular, fulvous spots on each elytrum; tips obtusely rounded, almost truncate, with a minute spine at the inner angle: beneath dark greenish-brassy, rugosely punctured: abdomen, terminal segment with a fulvous spot each side at base, two similar ones on the middle of the tip of the postpectus, and a paler one each side on the anterior margin of the antepectus. Varies much in the number, shape and disposition of the spots. It is closely allied to B. *lineata*, Fabr., and may perhaps be a variety of that species.

MELANOPHILA, Eschsch.

1. M. *ænsola*. Blackish-brassy, finely and densely shagreened.—3 l. long, 1¼ l. wide. Pennsylvania.

Dark-brassy above, confertly shagreened or wrinkled: head cupreous, brilliant, finely punctured and wrinkled: thorax finely and densely shagreened, with the base bisinuous: elytra slightly widest behind the middle, finely and densely shagreened, and indented on the basal margin, indentation profound near the humerus, and crossing the base of the thorax near the posterior angle; apex rounded; beneath and feet dark greenish brassy, shining, finely and confertly punctured.

2. M. *metallica*. Brassy-brown, finely shagreened; thorax with two transverse impressions each side of the middle.—2¼ l long, 1¼ l. wide. Pennsylvania.

Brassy-brown, finely shagreened; head feebly indented before the front; eyes brown; thorax transverse; subquadrate; a double transverse impression each side of the middle; posterior angles depressed; sometimes blackish-brassy; apex rounded; beneath and feet dark brassy, with a dark green reflection, finely and confertly punctured.

CHRYSOBOTHRIS, Eschsch.

1. C. *calcarata*. Dusky cupreous; elytra with a longitudinal elevated sutural line; thorax with an entire dorsal groove.—5 l. long, 2 l. wide. Pennsylvania.

Chrysobothris calcarata, Harris MS.

Dull cupreous and densely punctured above; head rough, brassy; antennæ blackish; thorax inequal, rugosely punctured, grooved in the middle; sides slightly contracted behind, almost rectilinear; basal edge strongly bisinuate: elytra finely and densely punctured; each elytrum with a profound double basal

indentation, and two or three other faint ones before and behind the middle; a distinct, longitudinal, arcuated, raised sutural line, and two or three others on the disc and near the lateral edge, the marginal and sutural lines confluent at apex: beneath and feet rugosely punctured, cupreous, slightly shining; tarsi blue; anterior femora strongly toothed in the males.

2. C. *punctata*. Dark green, cupreous and rugosely punctured above; antennæ and tarsi blue.—5½ l. long, 2½ l. wide. Pennsylvania.

Buprestis punctata, Melsh. Catal.

Above coarsely punctured and wrinkled, dusky green-brassy, with a rich purple reflection: head rough, two or three small, polished, frontal elevations; antennæ bluish-brassy, the three basal joints rich cupreous; eyes ochraceous, closely approximated behind; thorax with the basal margin transversely and strongly indented; medial groove faint and partial: sides almost straight, slightly rounded before; basal edge profoundly bisinuate: elytra with three abbreviated longitudinal, raised lines, of which the middle one is distinct, the two others obscurely defined: beneath and feet punctured as above, brilliant cupreous, with a green reflection; tarsi lustrous steel-blue.

3. C. *strangulata*. Brassy-black, rugosely punctured; thorax narrowed behind.—2½ l. long, 1 l. wide. Pennsylvania.

Buprestis strangulata, Harris Catal.

Black-brassy, transversely rugose-punctured, slightly shining: head roughly punctured, with several small glabrous or polished elevations; clypeus green-brassy: antennæ blackish: thorax confertly punctured and distinctly transversely wrinkled; a faint impressed dorsal line; sides rounded, distinctly contracted behind; basal edge bisinuate: elytra densely punctured and transversely wrinkled; about four longitudinal raised lines, of which the two intermediate ones are abbreviated, the marginal and sutural ones confluent at tip: beneath and feet black-brassy, punctured. This is the smallest known native species belonging to this subgenus. Specimens occur which are distinctly marked with two or three impressed cupreous spots on each elytrum.

4. C. *viridiceps*. Dull cupreous; head, sides of tibiæ, and tarsi, green; thorax slightly sinuate at sides; elytra with two cupreous impressions.—5½ l. long, 2½ l. wide. Pennsylvania.

Dull cupreous above; head equal, finely and densely grained, green; antennæ green, terminal joints cupreous; mandibles and palpi green; labrum pale testaceous: thorax almost equal, rugosely punctured, with the medial groove shallow; sides feebly sinuate in the middle, abruptly contracted at the posterior angles, and obtusely rounded at the anterior ones; basal edge bisinuate; green towards the lateral margins; elytra much punctured, towards the lateral and basal margins rugosely; four longitudinal raised lines, of which the two middle ones are interrupted by two cupreous impressed spots, placed, one a little before and the other a little behind the middle; basal margin profoundly indented towards the scutellum; tips red-cupreous: abdomen brilliant cupreous, rugosely punctured: pectus brassy-green, slightly canaliculate; feet punctured; femora anteriorly, tibiæ laterally and tarsi entirely green.

5. C. *rugosiceps*. Dull cupreous; head longitudinally rugulose, silvery (δ)

or brassy (♀); thorax narrowed behind; elytra three or four-ribbed; tarsi green. 4½ l. long, 2 l. wide. Pennsylvania.

Blackish-cupreous, roughly punctured: head longitudinally wrinkled, silvery (♂); brassy, granulated and with two polished frontal elevations (♀); antennæ silvery (♂) or cupreous (♀): thorax short, widest before the middle, gradually narrowed towards the base and abruptly narrowed at apex; punctured and transversely wrinkled; medial groove obtuse; basal edge bisinuate; elytra transversely rugose-punctured, with three or four obsolete, raised lines; disk with two cupreous impressions; apex bright cupreous: beneath and feet brassy or cupreous, much punctured, slightly ashy-pubescent: venter emarginate (♂), rounded (♀); tarsi green.

ANTHAXIA, Eschsch.

1. A. *gracilis*. Slender, black; face, thorax beneath and lateral margins, pectus and feet bluish-green; elytra three-ribbed.—2½ l. long, ½ l. wide. Pennsylvania.

Form of an *Agrilus*. Black, minutely granulated: head with the face bluish-green, brilliant; antennæ black, tinged with green; thorax almost equal, with a slight indentation each side of the middle, and a profound triangular one in front of the scutel; much contracted behind, with the sides very feebly rounded; posterior angles small, acute; lateral margins broadly bluish-green: elytra contracted in the middle, rugulose, opake, with three longitudinal, raised lines, of which the middle one is only distinct: pectus and feet rugulose, bluish-green: abdomen bluish-brassy, minutely punctured; tarsi ochraceous.

2. A. *scoriacea*. Cyaneous; thorax each side of the middle with a double impression.—2½ l. long, ½ l. wide. Pennsylvania.

Buprestis cærulea, Melsh. Catal.

Cyaneous, very finely wrinkled: head finely reticulate, with a shallow oblong frontal indentation, each side of the same with a small, round, shallow impression; antennæ brassy-black; eyes black; thorax with the sides rounded; a transverse impression each side of the middle, with the area of hind angles deeply indented; a punctiform impression in front of the scutel; elytra somewhat inequal: feet and beneath black, glossy; tibiæ and tarsi tinted with greenish.

Trachys tessellata. Black, elytra tesselated with white. Fabr. Syst. Eleuth. ii. 218, 1. The ♀ is smaller than the ♂ with the elytra dusky-purple, tinged with steel-blue, apex cupreous, varied with pale ferruginous; beneath glossy black, with the apex of the abdomen rounded. It is the *Buprestis ærosa*, Melsh. Catal.

Eucnemideæ.

MELASIS, Fabr.

M. *pectinicornis*. Blackish, or dark reddish-brown, opake; thorax scabrous. 3—4 l. long, 1—1½ l. wide. Pennsylvania.

Melasis pectinicornis, Norwich, Dej. Cat.

Blackish, or dark reddish-brown, punctured, pubescent: head densely punctured, with a distinct but obtuse frontal groove; antennæ and palpi, color of the

feet: thorax narrowed before, with the sides finely margined; scabrous, with the dorsal line faintly impressed, most distinct and dilated in front of the scutel; color darker than the elytra, sometimes with the margins darkest; scutellum punctured, with a longitudinal, indented medial line; elytra punctate-striate, with the striæ fine and profound, the interstices narrow, convex, punctured, and somewhat rough with transverse rugæ: beneath finely and densely rugosely punctured: feet strongly compressed, dull rufous, sometimes the femora blackish-brown. I have met with a description of this species.

LISSOMUS, Dalman.

L. *nitidus*. Black, glossy, immaculate; base of the antennæ, and tarsi dusky, rufous.

Elater nitidus, Melsh. Catal.

Size and form entirely of *Elater geminatus*, Say.

Black, shining, spotless: head sparsely and minutely punctured; antennæ black, with the basal joint rufo-piceous: thorax wider at base than at apex, with the sides almost rectilinear; minutely punctured, punctures almost confluent on the posterior margin: scutel triangular, black, impunctured, an impressed longitudinal line in the middle; elytra with sparse, very minute but deeply impressed punctures; beneath black, minutely punctured; tibiæ dark rufous. Although this species is destitute of the elytral spots, and less and differently punctured than D. *geminatus*, Say, it may nevertheless be only a variety of that species.

HYLOCHARUS, Latr.

H? *bicolor*. Dull rufous; antennæ, feet and beneath, rufo-testaceous.—4 l. long, 1 l. wide. Pennsylvania.

Dark rufous, yellow pubescent, finely shagreened: head and thorax darker than the elytra; antennæ nearly half the length of the body, subfiliform, with the basal joint as long as the head, and not much thicker than the other joints, arcuated, obliquely truncate at tip, second joint very small, third longer than the fourth, which is equal in length to the fifth, terminal joint cylindric, longest: thorax with the medial line indistinct; two obsolete obtuse impressions in front of the scutel; lateral margins densely yellow pubescent; scutellum truncate at base, rounded at tip, where it is indented; elytra punctate-striate, the interstices transversely rugose: beneath rufo-testaceous, glossy and densely punctate; feet testaceous; tibiæ ? I have seen but one specimen of this insect.

DIRHAGUS, Eschsch.

1. D. badius. Reddish-brown, yellow-pubescent, finely shagreened.—3 l. long, 1 l. wide. Pennsylvania.

Light chestnut-red or reddish-brown, densely yellow-pubescent, particularly the elytra; very finely shagreened; front convex; antennæ filiform, basal joint nearly as long as the head, somewhat arcuated, robust, second joint a little more than half the length of the third, somewhat pyriform, third as long as the sixth or seventh, terminal joint as long as the two penultimate ones united; thorax

very slightly contracted at hind angles, which are acute and not excurved; medial line very faintly indicated only at base: elytra very slightly striate, with the interstices transversely and finely wrinkled: beneath and feet color as above.—Must be closely allied to E. *calcatus* of Say, which is unknown to me.

2. D. *rufipes*. Deep fuscous; feet testaceous; front longitudinally impressed. 2¼ l. long, ⅓ l. wide. Pennsylvania.

Dark fuscous: head very minutely punctured, pubescent, with the front longitudinally impressed at tip; antennæ fuscous, about half as long as the body, with the basal joint as long as the head, not much more robust than the following ones, second joint very small, subglobate, third longer than the fourth, terminal longest, cylindric; thorax finely and densely punctured, densely pubescent, slightly contracted at posterior angles, which are straight; medial line only very faintly impressed at base: elytra finely punctate, the striæ obsolete behind the middle, the interstices minutely punctured, and traversely rugulose; sparsely pubescent: feet rufous, or rufo-testaceous, with the fourth tarsal joint slightly cordate: beneath very finely pubescent.

Elateridæ.

CTENONYCHUS, Steph.—*Cratonychus*, Dej.

1. C. *sphenoidalis*. Fuscous, pubescent; antennæ and feet dull reddish-brown.—7 l. long, 2 l. wide. Pennsylvania.

Gradually attenuated from the widest part of the thorax to apex of the elytra, dark brown, pubescent; front flat, coarsely and confertly punctured, with the anterior edge elevated, acute and rounded: eyes ochraceous: antennæ longer than the thorax, dull reddish-brown, somewhat serrate, pubescent: thorax a little wider towards the middle than the base of the elytra, profoundly punctured, punctures numerous, crowded on the lateral margins; sides slightly rounded before the middle; hind angles not excurved, distinctly and acutely carinated: scutel minutely punctured: elytra distinctly crenate-striate, the interstices flat, distantly and minutely punctured, and rough with transverse rugæ: beneath much punctured, black: feet dull reddish-brown. The description of Cr. *simulus* by Prof. Erichson corresponds accurately with the present species.

2. C. *ochraceipennis*. Thorax and beneath rufous; elytra testaceous or ochreous.—7 l. long, 2 l. wide. Pennsylvania.—Rare.

Elater bicolor, Melsh. Catal.

Head coarsely punctured, rufous pilose, with the front flat: clypeus with the anterior margin slightly elevated, obtusely rounded; eyes black; antennæ rufous, lanate: thorax some wider than long, wider behind than at apex, with the sides rounded; punctured, punctures large, profound, vicinal on the disk, and dense and rugose on the lateral margins; posterior angles acute, hardly excurved, distinctly and obliquely carinated; rufous, with the lateral edges blackish; ochreous hirsute; medial line faint at base: elytra yellowish testaceous, tinged with rufous, hirsute like the thorax; gradually narrowed from the base to the apex, punctate-striate, interstices more flat

than convex, distantly and finely punctured: beneath and feet color of the head or thorax.

3. C. *testaceus*. Testaceous; posterior angles of the thorax strongly carinate.—4½ l. long, 1½ l. wide.

Testaceous, clothed with fine, short, yellowish hairs; glossy: head with large approximate punctures, with the front very slightly convex; clypeus marginate and obtusely rounded at tip; eyes black; antennæ as long as thorax, slightly serrate, color of the thorax: thorax wider than long, much wider at base than at apex, finely, deeply and distantly punctured, rufo-testaceous, with the sides rectilinear from the hind angles to beyond the middle, thence to the apex somewhat suddenly rounded; hind angles straight, slightly incurved and deflexed at tip, prominently carinated, with the carinæ acute, subparallel to the lateral edges, and extending nearly to the middle of the sides: scutellum finely and sparsely punctured: elytra progressively narrowed from the base to the apex; finely punctate-striate, with the punctures longer than wide, profound, interstices flat, distantly and very finely punctured: beneath rufo-testaceous, densely and rugosely punctured; feet testaceous; claws unusually finely pectinated. Found in Pennsylvania.—Very rare.

4. C. *depressus*. Dark fuscous, pubescent; beneath densely and rugosely punctured; feet rufous.—5 l. long, 1½ l. wide. Pennsylvania.

Elater depressus, Melsh. MS.

Deep brown, pubescent: head with large vicinal punctures; front slightly convex: clypeus marginate at tip and each side slightly depressed, and with sparse longitudinal wrinkles, the edge obtusely rounded, and but slightly elevated; antennæ simple, slender, rufous, with the second joint short, obconic, third and following joints subclavate; glossy: thorax shorter than wide, with sides gradually and rectilinearly attenuated from the tip of the hind angles to beyond the middle, thence to the apex more suddenly narrowed; finely and distantly punctured on the disk, more closely on the lateral margins; medial line obvious from the base to the middle; posterior angles subacute, slightly piceous, acutely carinate, carinæ parallel with the lateral edges: scutellum sparsely punctured: elytra punctate-striate, the interstices subconvex, distantly and very finely punctured, and transversely rugulose: sides strongly narrowed from the base to the apex, which is acutely rounded: feet rufous.

5. C. *parumpunctatus*. Castaneous; thorax subquadrate, distantly punctured; feet dull rufous.—5½ l. long, 1½ l. wide. Pennsylvania.

Chestnut-brown, sparsely pubescent: head feebly convex, with large, dilated punctures; clypeus at tip margined, obtusely rounded and slightly elevated: antennæ filiform, longer than the thorax, yellowish-testaceous: thorax subquadrate, with the sides rectilinear from the tip of the hind angles to the middle, thence to the apex gradually arcuated; moderately convex; finely, distantly and subregularly punctured, glossy; posterior angles short, subacute and prominently carinate, with the carinæ long, subparallel with the exterior edge; dorsal line obvious behind the middle: scutel sparsely

punctured: elytra with the sides gradually tapering from the base to the apex, which is acutely rounded; punctate-striate, the interstices flattish, with minute distant impressed points: beneath dark reddish-brown, densely punctured, finely pubescent: feet dull chestnut-red.

MELANOTUS, Meg. Esch. Latr.—*Cratonychus*, Dej.

1. M. *ignobilis*. Dark fuscous, pubescent, punctured; antennæ and feet chestnut-red.—5 l. long, 1¼ l. wide. Pennsylvania.

Head strongly and confluently punctured, with the anterior edge prominent, elevated and rounded: antennæ robust, serrated, longer than the thorax, pale brown, with the second and third joints equal, conjointly hardly as long as the fourth, or following ones: thorax very slightly narrowed before, much and subequally punctured, finely and densely ashy pubescent, with the sides almost rectilinear; posterior angles very slightly excurved, acutely carinate, with the carinæ near the outer edges, and with them subparallel to near their middle: scutel with sparse and strong punctures: elytra punctate-striate, with the punctures large and profound behind the base, and small and somewhat obsolete behind the middle, the interstices flattish, with minute and remote punctures; finely and densely ashy pubescent; sides attenuated from the base to the apex, which is acutely rounded: beneath finely pubescent, with the feet and lateral margins and tip of the anal segment, dull chestnut-red.

2. M. *glandicolor*. Castaneous, rectilinear from near the anterior thoracic angles to beyond the middle of the elytra; antennæ and feet rufous.—8 l. long, 2½ l. wide. Pennsylvania.

Head sparsely yellowish-pilose, with the front rather inequal, with coarse and dilated punctures; clypeus with the anterior edge projecting, rounded and slightly elevated; color of the thorax: antennæ serrate, longer than the thorax, with the second and third joints equal, unitedly hardly longer than any of the following ones; dusky rufous: thorax subquadrate, very slightly narrowed in front, much and profoundly punctured, with the punctures crowded on the lateral margins; dorsal line obsolete before the middle and but faintly indicated behind it; sides almost rectilinear from the hind angles to near the apex, where they are abruptly rounded; hind angles strongly and acutely carinate; dull rufous or red-brown, glossy: elytra chestnut-brown, finely pubescent, crenate-striate, the interstices flat, finely and distantly punctured; sides rectilinear from the base to beyond the middle, thence to the apex gradually narrowed: beneath densely ashy-pubescent; feet, antepectus and epipleuræ dull rufous.

3. M. *paradoxus*. Black, elongate; inner elytral striæ effaced; antennæ and feet rufous.—7½ l. long, 2 l. wide.

Body elongate, with the sides parallel; sparsely pubescent, black or deep brown: front rugose-punctured, with the anterior edge somewhat projecting, elevated and rounded: palpi and antennæ rufous, the latter some longer than the thorax, serrated, with the second and third joints equal, unitedly about as long as any of the following ones: thorax short, deeply and somewhat

closely punctured; medial impressed line only apparent in the middle and at base; sides rectilinear from the tip of the hind angles to a little before the middle, where they are angularly narrowed to the apex; posterior angles acute, prominently carinated, with the carinæ near the outer edges and slightly oblique: elytra elongated, with the sides rectilinear from the base to near the apex; inner striæ of punctures obsolete or effaced, four outer ones distinct and placed in rather obtuse or faintly impressed striæ, particularly towards the apex; suture slightly rufous: tip of abdomen reddish-brown: feet and anterior coxæ, rufous.

Chalcolepidius prasinus. Two specimens, ♂ and ♀, of an Elater were captured near Baltimore by the Rev. Dr. Morris, the ♀ is now in my collection, and is no other than the specimen of a species, inhabiting South America, described by Prof. Erichson in Germar's "Zeitschrift für Entomologie," Vol. iii., p. 85, under the above name. This species may probably prove to be *Elater viridipilis*, Say, Ann. Lyc. Nat. Hist. New York, Vol. i. No. ix. p. 257, and also noticed in the Trans. Amer. Phil. Soc. Philad., Vol. vi. p. 166, No. 5.

ATHOÜS, Eschsch.

1. A. *vagrans.* Fuscous; beneath and feet castaneous; thorax oblong-quadrate, with four obsolete impressions.—9 l. long, 3 l. wide. Pennsylvania.

Elongate, dark chestnut-brown above: head clothed with yellowish pile, rugosely and profoundly punctured, with the cypleus anteriorly deflexed and the edge only elevated in front of the eyes, which are black and glossy; antennæ somewhat longer than the thorax, slender, second joint not half so long as the third, which is equal in length to the fourth, terminal distinctly subulate or furnished with an accessorial point; yellowish, pubescent; thorax oblong-quadrate, somewhat convex, with the sides rectilinear, or somewhat undulated, very slightly rounded in the middle and faintly contracted before the posterior angles; yellowish pubescent, densely and profoundly punctured; each side of the middle with two obsolete indentations, the two anterior ones are placed behind the anterior margin, the two posterior ones a little before the basal margin; medial channel somewhat apparent in the middle; posterior angles robust, slightly excurved, subacute, carinate, carinæ fine, long, almost parallel to the lateral edge: scutellum densely yellowish pilose, with the disk longitudinally convex, punctured and glabrous: elytra somewhat widest beyond the middle, obtusely transversely indented behind the basal region; finely punctate-striate, the interstices broad, flat, minutely and indefinitely punctured, and transverse rugulose towards the base, clothed with very short and fine yellowish pile; apex acutely rounded, beneath and feet some lighter colored than above, densely minutely yellowish pubescent. Resembles somewhat A. *memnonius*, Hbst., but is narrower and otherwise distinct from that common species.

2. A. *æqualis.* Fusco-testaceous; thorax oblong subquadrate.—9 l. long, 2 l. wide. Pennsylvania.

Elongate, light chestnut, with the thorax darker: head as in the preceding: antennæ as in the preceding: thorax differs from that of the preceding in being almost glabrous, in the sides being more distinctly undulated, more contracted before the hind angles, and in having these more strongly excurved: scutel as in the preceding: elytra as in the preceding, but almost glabrous: beneath and feet somewhat lighter tinted than above. This may, perhaps, be only a variety of the preceding.

3. A. *melanopthalmus*. Fusco-testaceous; thorax widest before the middle; eyes black.—8½ l. long, 3 l. wide. Pennsylvania.

Elater melanopthalmus, Melsh. Catal.

Brownish-red, very finely yellowish pubescent, almost glabrous: head coarsely and rugosely punctured, with the front impressed: clypeus at tip obtusely rounded, with the edge slightly raised, black, and deflexed in the middle; antennæ not much longer than the thorax, rufous, pubescent, with the second joint almost half the length of the third; fourth and following joints compressed, and broader than the third; eyes black; thorax rather longer than wide, decidedly widest before the middle, contracted at the posterior angles, moderately convex, much and profoundly punctured; a faint entire dorsal line; an obtuse indentation each side near the middle of the lateral margins; sides rounded, slightly excurved at the hind angles, which are shortish and feebly carinate, carinæ near and parallel to the outer edge: scutel densely and very finely punctured, with the disk somewhat convex: elytra widest behind the middle, thence to the apex gradually arcuated; punctate-striate, the interstices flat, finely and indefinitely punctured and rugulose; beneath and feet lighter tinted than above. Bears a strong resemblance to the preceding, but differs essentially from it in the outlines and punctuation of the thorax, and in the form and indentation of the front and clypeus.

4. A. *strigatus*. Fusco-testaceous; front triangularly impressed.—7 l. long, 2½ l. wide. Pennsylvania.

Elater strigatus, Melsh. Catal.

Brownish-red or castaneous: head confluently rugose-punctured, with the face triangularly impressed; clypeus porrect, with the apex almost truncate; antennæ slender, as long, or longer than the thorax, hardly serrate or only very feebly so, second joint half the length of the third: eyes black: thorax longer than wide, wider at base than at apex, convex, finely, confertly and somewhat rugosely punctured; medial impressed line only visible behind the middle: sides feebly rounded; sparsely pubescent; hind angles short, obtuse, straight, and finely and obliquely carinate: scutel somewhat impressed, coarsely punctured: elytra obviously punctate striate, with the interstices finely and distantly punctured, and transverse-rugulose, flat; sides rectilinear from the base to behind the middle, from where to the apex they are gradually arcuated: beneath rufo-testaceous: feet yellowish.

5. A. *cavifrons*. Rufous; front widely impressed; thorax subquadrate.—6 l. long, 2 l. wide. Pennsylvania.

Subparallel, yellowish-rufous, minutely yellowish-pubescent: head strongly punctured, with the front widely triangularly impressed, impression occupying nearly the entire face; clypeus obtusely rounded at apex; antennæ color of the body: eyes large, prominent, black, glossy: mandibles with the tip black: thorax longer than wide, slightly contracted at the hind angles, where it is wider than at apex; sides almost rectilinear from the apex to the contraction; finely and densely punctured, subglabrous; medial line indistinct, only apparent at base; posterior angles feebly excurved, and obsoletely and shortly carinate: scutellum rather large, pubescent, minutely and closely punctured: elytra distinctly punctate-striate, interstices flat, finely and distantly punctured and transversely wrinkled, subglabrous and like the thorax glossy; sides parallel from the base to behind the middle: beneath yellow testaceous: feet testaceous.

6. A. *oblongicollis*. Fuscous; thorax oblong-quadrate; face triangularly impressed; antennæ and feet testaceous.—7 l. long, 2 l. wide. Pennsylvania.

Elongate, brown, yellowish-pubescent; head finely and rugosely punctured, densely pubescent; face triangularly impressed, with the anterior edge of the clypeus prominent, truncate, slightly deflexed, rufo-piceous; antennæ slender, longer than the thorax, feebly serrate, testaceous, second joint half the length of third nearly; eyes large, prominent, black; palpi testaceous: thorax oblong-quadrate, strongly convex, narrower than the elytra, deeply, densely and rather finely punctured; medial impressed line distinct behind the middle; sides slightly widest and rounded in the middle, and feebly contracted before the posterior angles, which are short, robust, obtuse and somewhat excurved and piceous; scutellum finely punctured: elytra with the sides parallel from the base to the middle, thence to the apex gradually narrowed; crenate-striate, the interstices slightly convex, densely transverse-rugulose; exterior edge and suture dull rufous: epipleuræ and abdominal margins dark rufous: feet nearly the color of the antennæ.

7. A. *hypoleucus*. Fuscous, beneath testaceous; face triangularly impressed; posterior thoracic margin and angles piceous.—5½ l. long; 1½ l. wide. Pennsylvania.

Brown: head confluently rugose-punctured, pubescent, triangularly impressed on the face, with the clypeus porrect, truncate at apex; dull rufous; antennæ slender, somewhat longer than the thorax, rufous; second joint half as long as the third, which is slightly longer than the fourth; terminal joint distinctly subulate; eyes prominent, large, black; thorax oblong-quadrate, convex, densely and finely punctured, clothed with fine, anteriorly inclined, pile; darker than the elytra; dorsal line narrow, faintly impressed; sides almost rectilinear; hind angles short, subacute, finely carinate; base and posterior angles testaceous or piceous, sometimes obsoletely so: elytra gradually narrowed from behind the middle to the apex, with punctured striæ, interstices slightly convex, transversely wrinkled; clothed with short yellowish pile; sides obsoletely dull rufous: beneath rufo-testaceous: feet testaceous.

8. A. *æneolus*. Dark brown-brassy, pubescent; front faintly impressed.—5½ l. long; 1½ l. wide. Pennsylvania.

Brassy-brown or black: head rugosely punctured, clothed with yellowish hairs, with the clypeus almost flat, not prominent, the anterior edge rather obtusely rounded and glossy, slightly reflexed; antennæ dull rufous, or blackish, pubescent, longer than the thorax, with the joints almost simple; second joint two-thirds the length of the third, which is smaller than the fourth; terminal joint longest, cylindric, and very obsoletely subulate: thorax subquadrate, convex, slightly wider behind than before, slightly rounded at the sides; densely clothed with an ochreous pubescence, closely and minutely punctured; medial line faintly defined, sometimes not apparent; hind angles short, subacute, slightly excurved, slightly carinate: scutellum rather somewhat convex, densely ashy-pubescent, elytra progressively arcuated from behind the middle to the apex, which is acutely rounded; punctate-striate, the interstices somewhat convex, finely and distantly punctured, transversely wrinkled: beneath black, thinly pubescent, hind margins of posterior abdominal segments rufo-piceous: feet dull rufous.

9. A. *æreus*. Brassy; thorax dark fuscous, finely and densely punctured, pubescent; elytra dusky reddish-brown; antennæ, feet, epipleuræ and apical margins of posterior ventral segments, rufous. Pennsylvania.

Elater æreus, Melsh. Catal.

Size of the preceding, which it strongly resembles, but is somewhat wider, the thorax shorter, wider and more strongly arcuated at the sides; the antennæ are more simple, shorter and with the joints more cylindrical, even in ♀ s; the second joint is more than two-thirds the length of the third; fourth joint a little more robust than the fifth; terminal joint shorter, and less distinctly subulate than in the preceding species; form and sculpture of the head and elytra, vesture of the scutel, and color of the body beneath, as in the preceding species.

10. A. *procericollis*. Linear; thorax oblong-subquadrate, dusky reddish-brown; face triangularly impressed; antennæ and feet pale testaceous.—5 l. long; 1½ l. wide. Pennsylvania.

Elater longicollis, Melsh. Catal.

Linear, finely and not densely pubescent: head confluently punctulate, with the clypeus porrect, triangularly impressed, obtusely rounded and hardly deflexed at tip: color of the thorax; antennæ and palpi testaceous, the first much longer than the thorax, slender, subserrate, with the second joint one-third the length of the third, which is longer than the fourth, terminal joint distinctly subulate: thorax oblong, convex, with the sides feebly rounded; finely and densely punctured; medial line faint, very slender, glossy; chestnut-brown, with the posterior angles paler, short, robust, subacute, slightly excurved, obliquely and very feebly carinate: scutellum color of the thorax, coarsely punctured: elytra with the sides gradually narrowed from behind the middle to near the apex, which is acutely rounded; punctate-striate, the interstices finely and not densely punctured and transversely wrinkled; reddish-brown: beneath rufous: feet testaceous.

11. A. *arcticollis*. Reddish-brown; thorax elongate, narrow; face triangu-

larly impressed; antennæ and feet dusky rufous.—5 l. long; 1½ l. wide. Pennsylvania.

Reddish-brown, rufous pubescent: head nearly as wide as the thorax, densely punctured, with the clypeus porrect, triangularly impressed, margined and obtusely rounded at apex; eyes large, prominent, black; antennæ fully half the length of the body, slender, not serrate, dull rufous, with the second joint small, hardly half as long as the third, which is nearly as long and robust as the fourth; terminal joint somewhat thickened towards the tip: thorax oblong, convex, decidedly narrower than the elytra, with the sides straight and parallel from base to apex; finely and densely punctured; hind angles short, straight and slightly deflexed; scutel very finely punctured: elytra crenate-striate, with the interstices more convex than flat, finely and distantly punctured; feet dull pale rufous.

12. A. *trivittatus*. Fuscous; elytra reddish-brown, with the submargins and suture dusky; feet testaceous.—5 l. long; 1¼ l. wide. Pennsylvania.

Resembles *Elater vittatus*, Fabr. Elongate: head closely and profoundly punctulate, very slightly convex, with the clypeus short, margined, obtusely rounded or almost truncate and piceous or dull rufous at tip; color of the thorax: antennæ color of the feet, hardly as long as the thorax, slender, simple, with the second and third joints subequal, obconic, nearly as long as the fourth and fifth, but less robust; basal joint robust, clavate; palpi color of the antennæ: thorax oblong, convex, as wide at base as the elytra, and slightly wider than at apex, with the sides very feebly arcuated from the apex to the hind angles, and there slightly contracted; posterior angles subtriangular, short, slightly excurved, hardly carinate; equally, deeply and densely punctulate, dull reddish-brown, with the margins and hind angles paler: scutellum convex, sparse-punctulate: elytra with the sides parallel from the base to behind the middle, thence gradually arcuated to the apex; punctate-striate, with the punctures numerous, small and profound, and the striæ fine, the interstices flat, with indefinite yet distinct minute punctures; reddish-brown, with the suture and submargins dusky; feet, epipleuræ and pleuræ testaceous; tarsi, first joint longer than three following ones united, which are slightly dilated and cushioned beneath; fourth joint very minute. It is rare, and the *Elater trivittatus*, of Melsh. Catal. This species does not strictly belong to the genus to which I have referred it.

13. A. *tarsalis*. Black: elytra and feet rufo-testaceous, with the tarsi black; antennæ long.—5 l. long; 1¼ l. wide. Pennsylvania.

Elongate, black: head rugosely punctured, with the clypeus short, slightly impressed, impression extending to the middle of the vertex, with the anterior edge slightly elevated in front of the eyes, and indented in the middle; antennæ deep black, robust, half the length of the body, with the second joint very small, obconic; third joint as wide as the fourth and a little longer; terminal joint long, slender, subulate; third and following joints compressed: thorax oblong-subquadrate, moderately convex, black, slightly bronzed, finely and profoundly punctured, punctures dense on the middle, confluent on the basal and lateral margins; sides almost rectilinear, slightly rounded towards the apex, and faintly contracted before the hind angles, which are obtuse, rather excurved, and not carinated; medial channel faintly and partially defined: scutel black, flat, punctured: elytra very progressively narrowed from the base to near the apex, which is acutely rounded; punctate-striate, the interstices somewhat con-

vex, minutely punctured, and finely transversely corrugated; dull testaceous, with the sutural and lateral edges and apical third, dusky; beneath black, whitish, sericeous: feet rufous or rufo-testaceous; tarsi simple, slender, with the basal joint of anterior pair as long as the two preceding united; posterior femoral plates lanceolate. This species is also very equivocal as respects its generic characters. It is common, and probably already described.

LIMONIUS, Eschs.

1. L. *posticus*. Black; base of the thorax rufous; clypeus prominent.—5½ l. long; 1½ l. wide. Pennsylvania.

Black, finely pubescent: head finely and profoundly punctured, with the clypeus prominent, slightly impressed, broadly elevated and obtusely rounded at apex: antennæ somewhat longer than the thorax, serrated from the fourth joint, second and third joints small, obconic, equal, unitedly hardly as long as the fourth, which is slightly longer than the fifth; terminal joint subulate; black or dark brown, with the three basal joints dusky rufous; labrum piceous: mouth testaceous: thorax convex, with the sides rectilinear, abruptly rounded at apex; finely and densely punctured, ochreous pubescent; medial line slight, entire; hind angles short, straight, broad, finely and obliquely carinate, testaceous or piceous; posterior margin similarly colored: elytra punctate-striate, with the striæ fine, the interstices broad, flat, finely punctured and corrugated; sides rectilinear from the base to beyond the middle, thence to the apex rounded: beneath black; ventral apex and posterior margin and suture of antepectus, rufous: feet pale brown.

2. L. *metallescens*. Fuscous, bronzed; antennæ and feet rufous.—4½ l. long; 1½ l. wide. Pennsylvania.

Brassy-brown, ochreous pubescent: head profoundly punctulate, flat, with the clypeus anteriorly slightly deflexed, truncate at apex; antennæ short or not longer than the thorax, rufous, sometimes dusky, subserrate, with the second and third joints sub-equal, obconic; terminal ovate, subulate: mouth dull rufous: thorax convex, densely punctulate; sides feebly rounded; medial impressed line obsolete; margins frequently obsoletely dusky rufous; posterior angles almost straight, acute, finely and obliquely carinate: scutel convex, minutely punctured: elytra punctate-striate, flattish, somewhat numerously punctulate; beneath dull rufous, finely ashy-pubescent: feet pale rufous; tarsi simple, with the basal joint shorter than second and third together; posterior femoral plates lanceolate.

CARDIOPHORUS, Eschs.

C. *amictus*. Dark fuscous, densely ochreous pubescent; feet rufous;—4½ l. long; 1½ l. wide. Pennsylvania.

Head slightly convex, minutely punctured, densely and finely ochreous pubescent, the front margin of the clypeus very feebly raised, rounded: antennæ longer than the thorax, colored like the body, with the basal joints and mouth dusky rufous; palpi black or deep brown: thorax strongly convex, wider at base than at apex, dark brown, minutely and densely punctured, and clothed with a fine, dense, ochreous pubescence; sides moderately rounded; hind angles short, acute, almost straight: elytra gradually narrowed from the base to the apex; punctate-striate, the interstices rather impunctured and slightly convex; less

densely pubescent than the thorax ; blackish : beneath similarly colored : feet dull rufous.

ECTINUS, Ech.

E. *granulosus*. Deep black ; head and thorax densely granulated.—6½ l. long ; 2½ l. wide. Pennsylvania.

Elater æthiops, Melsh. Catal.

Deep black, densely, finely and shortly hirsute : head granulate or finely rugosely punctured, with a slight impression between the eyes ; clypeus deflexed, with the edge slightly raised and subacutely rounded at tip ; antennæ short, strongly serrated from the fourth joint, with the second and third joints small, conjointly not so long as the fourth, which is somewhat longer than the fifth, terminal joint about as long as the fourth, subulate; black, minutely and densely hirsute ; thorax rather convex, longer than wide, densely and finely granulate or confluently punctulate, with the sides finely and acutely margined, rectilinear from the hind angles to beyond the middle, thence to the apex, abruptly rounded, feebly contracted before the hind angles, which are subacute, hardly excurved, acutely and obliquely carinate ; an obtuse indentation in front of the scutel, which is flat, ovate-lanceolate, punctulate: elytra deeply punctate-striate, sutural striæ impunctured, interstices convex, densely and minutely punctured and transversely corrugated ; sides subparallel from the base to beyond the middle, where they are slightly widest, thence to the apex gradually arcuated: beneath, viewed from behind, simply blackish, viewed laterally and before, ashy sericeous: feet chesnut-red : tarsi dusky rufous, basal joint as long as the two following unitedly ; posterior femoral plates lanceolate, very slightly dilated within.

ELATER, Linn. Latr.

1 E. *humeralis*. Black ; exterior basal angles of the elytra rufous.—4½ l. long ; 2½ l wide. Pennsylvania.

Elater humeralis, Melsh. Catal.

" *trimotatus*, Knoch. MS.

Deep black, shortly hirsute: head moderately convex, confluently punctured, hirsute, with the clypeus margined and obtusely rounded at apex ; antennæ longer than the thorax, serrated from the fourth joint, with the second joint smaller than third, which is much less than the fourth, the latter equal to the fifth, terminal ovate, obsoletely subulate; black: thorax a little longer than wide, one-third wider at base than at apex, where it is not wider than the head, moderately convex, very finely and somewhat distantly punctured, shining ; sides rounded; posterior angles scarcely excurved, acute, obliquely carinate; scutellum narrow, rounded at tip : elytra with the sides parallel from the base to behind the middle; finely punctate-striate, the interstices flat, transversely corrugated; exterior basal angles and parapleuræ rufous, the former including sometimes several black punctures: feet pitchy-black, with the tibiæ brownish; tarsi slender simple ; posterior femoral plates slightly dilated within, and with a slight tooth in the middle. Agrees somewhat with the description of E. *armus*, Say. The present and some of the following species might perhaps be referred with more propriety to some other subgenera of the present family.

2. E. *impolitus*. Dark fuscous: feet and three basal joints of the antennæ, rufous.—5 l. long. 1¾ l. wide. Pennsylvania.

Flattish, dark brown, pubescent: head minutely and densely punctured, with clypeus short and rounded at apex: antennæ hardly as long as the thorax, fuscous, three first joints dull rufous; second and third joints shorter and more slender than the fourth, obconic, second shorter than the third; subserrate from the fourth joint: thorax wider than long, much wider at base than at apex, much and finely punctured; dorsal line distinct behind the middle; sides rounded; posterior angles acute, slightly and acutely carinate, straight: elytra gradually narrowed behind the middle, with the apex acutely rounded, punctate-striate, with interstices convex, minutely and distantly punctured: beneath blackish: feet dull rufous: tarsi simple, the joints gradually decreasing in length: posterior femoral plates dilated within and slightly toothed in the middle. This species is altogether destitute of prominent characters. It resembles much in its form some species of *Ctenonychus*.

3. E. *hepaticus*. Brunneous, yellowish hirsute. 5½ l. long, 1¾ l. wide. Pennsylvania.

Brown; head finely and densely punctured, with the clypeus short, margined and obtusely rounded at tip; antennæ dull reddish-brown, slightly serrate, with the second and third joints somewhat elongated, the former shorter than the latter which is one-third shorter than the fourth: thorax wider than long, wider in the middle than the base of the elytra, slightly convex, minutely and densely punctured; sides slightly rounded; posterior angles short, straight, subacute, obliquely and acutely carinate: scutel sparsely and coarsely punctured: elytra shortly hirsute like the thorax, punctate-striate, the interstices flat, distantly punctulate, finely corrugated; sides gradually narrowed from the base to near the apex, which is acutely rounded: beneath and feet dull reddish-brown; tarsi simple, with the joints gradually decreasing in length; posterior femoral plates abruptly dilated within, and toothed in the middle.

E. *rubricus*. Black; lateral and posterior margins of the thorax broadly red.

Var. ♀. "Thorax bright rufous with a large black spot; elytra paler," Say Ann. Lyc. N. Y. i. 261.

Stated Meeting, December 3, 1844.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

Three hundred specimens of Alpine plants from the vicinity of the Valley of Chamouni. Presented by Mr. Jacob Snider, Jr., of Philadelphia.

Fine specimen of the fruit of Maclura aurantiaca, from Texas. Presented by Professor George B. Wood.

Fifty specimens of British Lepidoptera and Coleoptera. Presented by Mr. Cassin.

Casts, in plaster, of the impressions of feet of a supposed quadruped, from Greensburg, Pennsylvania. From Dr. Alfred T. King, of Greensburg.

Numerous specimens of the following species of fresh water univalve Shells of Ohio. Presented by Mr. J. G. Anthony, of Cincinnati, viz.:

Amnicola Sayana, Anthony,
Limnea caperata, Say,
" chalybeus, Gould,
" columella, Say,
" desidiosa, Say,
" humilis, Say,
" reflexa, umbrosa, &c.,
Melania exilis, Haldeman,
" gracilis, Anthony.
Melania Sayii, Wood,
" abjuta, Haldeman,
Physa elongata, Say,
" gyrina,
Planorbis exacutus,
" dilatatus, Gould,
Cyclas altilis, Anthony,
Paludina subsolida, do.

The following specimens, from Venezuela, were presented by Mrs. Sarah Campbell, of Germantown.

Copper ore from the mines of Aroa, Venezuela; iron pyrites in grains, from Los Tequis, Valley of the Fuy; coral, from the coast near Laguayra; bark of the Great Saman, Valley of Aragua; stalactite, from a cave near Curripi; calcareous deposite with impressions of leaves, from Chacao, in the Valley of Caraccas; 50 specimens of small shells, from the coast west of Puerto Cabello; 'Sangre de dragon,' from Venezuela; seeds of different kinds from near the mines of Aroa; coal, from the same locality.

DONATIONS TO LIBRARY.

Transactions of the Zoological Society of London, Parts 2 and 3 of Vol. 3. 4to. London, 1841.

Also Proceedings of the same. Part 11, for 1843. From the Society.

A chronological introduction to the History of the Church, &c. By the Rev. Samuel Farmar Jarvis, D. D., L. L. D.

8vo. pp. 618. London, 1844. From Mr. Richard K. Haight, of New York.

A Memoir of William Maclure, Esq., late President of the Academy of Natural Sciences of Philadelphia. By Samuel George Morton, M. D. 2d edition. Philadelphia, 1844. From Mr. Alexander Maclure.

Review of the New York Geological Reports. By David Dale Owen, M. D. (From the American Journal of Science and Arts. Vol. 46.) From the Author.

Report intended to illustrate a Map of the Hydrographical Basin of the Upper Mississippi river, made by J. N. Nicollet, February 16, 1841. Washington, 1843. From the Bureau of Topographical Engineers, through Col. J. J. Abert.

A public discourse in commemoration of Peter S. Duponceau, L. L. D., late President of the American Philosophical Society, delivered October 25, 1844. By Robley Dunglison, M. D. Philadelphia, 1844. From the Society.

A communication was read from the American Philosophical Society, dated November 1, 1844, returning the acknowledgements of the Society for the last No. of the Proceedings of the Academy.

Two communications from the Zoological Society of London, dated October 31, 1843, and June, 1844, in acknowledgement of the receipt of certain numbers of the Proceedings.

A communication from Mr. Haldeman was read, stating that some manuscript descriptions of insects by the late Mr. Say, transmitted by Mrs. Say, which had been referred for examination to a Committee, of which he was chairman, had been already published in the Journal of the Academy.

A letter was read from Dr Alfred T. King, of Greensburg, Pennsylvania, addressed to Mr. Cassin, dated November 22, 1844, in reference to his donation of this evening.

Professor Johnson exhibited specimens of coal coke, cinders, and lumps of pyrites, from a heap of about 250 tons of bituminous coal, from the line of the summit portage Railroad, in Cambria county, Pennsylvania. This coal had been lying for five or six months in the coal yard of Mr. Nathan Middleton, south west corner of Ridge Road and Willow street, and was yesterday morning (December 2, 1844,) found to be on fire from spontaneous combustion, burning through a board fence between the coal yard and the adjoining premises, very near the ground. The height of the pile, above the point where combustion commenced, was about nine or ten feet. On applying a thermometer at three feet distance, in a horizontal direction from the fire, the temperature was found to be only 70 degrees; but by digging down over the same point to within four feet of the level of the fire, the temperature was 160 degrees.

One of the specimens exhibited, on a surface of deposition, a yellowish white pellicle of pyrites, which, from the minuteness of the crystals, resembles frost-work; another has distinct plies or seams of the sulphuret continued through the lumps; a third is a nodular lump of nearly pure pyrites; and a fourth is a fragment of a reniform mass of the same material, weighing upwards of three pounds, with a film of adhering coal. The interior of the mass is somewhat porous, with a slight intermixture of carbonaceous matter; while the exterior is a shell of much more compact structure. Clusters of crystals, of considerable magnitude, are here and there seen. On the part coated with coal are seen films or dissepiments, penetrating the coal at right angles to the surface of the kidney-shaped mass. On one side the coal has been polished, apparently by sliding under immense pressure over some hard substance, giving it the appearance of "slickensides." In this part, the projecting partitions of sulphuret of iron, as well as the coal, have been broken down, crushed and flattened, and the direction in which the folia have been bent, marks that of the motion which had occurred in the bed.

Professor Johnson also exhibited the peroxide of iron adhering to the coke formed in this spontaneous ignition, and referred to the decomposition of sulphate of iron, without access of air, as capable of producing that oxide. Also, to the simultaneous development of anhydrous sulphuric acid and sulphurous acid as the volatile products. The latter acid, when generated in the combustion or distillation of bituminous coal, passes off in combination with ammonia,

giving rise to the sulphite of ammonia, one of the known products of the gas making process.

Reference was made to the first volume of the Proceedings, page 140, for an account of another case, not of actual combustion, but of the heating to 110° of a heap of coal from the same coal district; and to an instance which had come under the observation of Prof. Johnson, at Lowell, Massachusetts, where, having found a temperature of 160° in a heap of Sidney, Nova Scotia, coal, at a distance of three feet from the surface, a period of 50 days was allowed to elapse, in which time it actually took fire.

The importance to coal dealers of attending to the character of that which they store and keep on hand for months, was rendered apparent by the occurrence now alluded to. Had the combustion occurred on another side of the heap, it would have set fire to a coachmaker's shop filled with combustible materials. Had it been on ship-board, the planks and timbers might have been charred, or the vessel set on fire, with scarcely the possibility of extinguishing the flames. The decomposition of sulphuret of iron, found in such abundance in this coal, aided by air and moisture, affords a ready solution of this and similar occurrences.

Dr. Gibbons exhibited a diagram, intended to show the path of the thermometer as compared with that of the barometer, in which the great fluctuations of the former instrument are observed to follow those of the latter at a distance of about thirty-six hours.

Also a table, showing that the mean temperature of the last six days of November, for a period of seventeen years, ending 1843, is lower than that of the first six days of December, by 0°.87.

Stated Meeting, December 10, 1844.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

Head of Sus babyroussa, from Manilla. Presented by Captain Sandwith Drinker.

The following bird skins, from China, were presented by Dr. Elisha K. Kane, U. S. N., viz.:

Centropus Phillippensis; Ocypterus fuscus?; Columba humilis; Porphyreo smaragdinus; Eurystomus indicus; Buceros panayensis; Falco ———, (2 spec.;) Cuculus ———, (2 spec.;) Zosterops flava; and Merula ———.

A letter was read from Mr. J. Tremper, dated Dresden, Yates county, New York, December 3, 1844, addressed to the Corresponding Secretary, announcing that it was his intention to remain during the winter in the vicinity of the Seneca Lake, and offering to procure for the Cabinet of the Academy geological specimens from that region.

Mr. Conrad read a paper, intended for publication, entitled "Descriptions of eight new fossil shells of the United States;" which, on motion, was referred to a committee, consisting of Mr. Phillips, Dr. Morton, and Mr. Haldeman.

Professor Johnson read a continuation of his paper on the calorific power of coals, and particularly on the Osage coal of Missouri, and on a specimen of pure bitumen. He then gave a resumé of the several varieties of coal which he had assayed, and compared the practical evaporative powers, as determined by steam generating operations, with the calculated powers of the same coals, as ascertained by determining the proportion of its carbon constituent. The accordance is very striking, being 10.701 for the mean of the results given by steaming operations, and 10.691 by ultimate analysis. An abstract of this valuable and elaborate paper will be furnished

by Professor Johnson for publication in a future number of the Proceedings.

Mr. Gilpin exhibited a recent rib-bone of a cetaceous animal, which had been found by Dr. Morris, in the middle of a forest in the State of Delaware, at a distance of about six miles from the Bay shore. Instances had occurred within the recollection of some of the members present, of small individuals of this family having been thrown upon the shores of the Delaware even as high up the river as Burlington.

Stated Meeting, December 17, 1844.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

Two specimens of Strix nebulosa, (one mounted.) Presented by Mr. Samuel W. Woodhouse.

The Curators announced the following additions to the Museum, received in exchange, from Dr. Kinberg, of Lund, in Sweden, viz:

Eighty-six Bird skins, of which the following are new to the Collection of the Academy:

Falco islandicus, Lath.; Aquila fulva, Linn.; Pandion haliaetus, Linn.; Milvus regalis, Briss.; Circus rufus, Briss.; Asio bubo, Linn.; Scotophilus Tengmalmii, Selby; Surnia funerea, Linn.; Merula viscivora, Linn.; Cinclus aquaticus, Briss.; Phœnicura tithys, Scopoli; Salicaria phragmites, Bechstein; Budytes flava, Linn.; Accentor modularis, Gm.; Regulus ignicapillus, Brehm; Parus palustris, Linn.; Parus ater, Linn.; Muscicapa luctuosa, Scopoli; Pastor roseus, Linn.; Emberiza miliaria, Linn.; Fringilla montifringilla, Linn.; Linaria cannabina, Linn.; Alauda cristata,

Linn; Anthus rupestris Nilson; Dryotomus martius, Linn.; Dendrocopus minor, Linn.; Dendrocopus leuconotis, Bech.; Apternus tridactylus, Linn.; Tetrao urogallus, Linn. (♀); Tetrao urogalloides; Tringa Temminckii, Leisler; Podiceps cornutus, Gm.; Podiceps rubricollis, Lath.; Anas histrionica, Linn.; Alca torda, Linn.

Also between 8 and 900 specimens of Shells, chiefly of the genera Helix, Unio, Bulimus, Pupa, Clausilia, Planorbis, Paludina, Trochus, Littorina, Anodonta, Tellina, Amphidesma, Cyclas, Limnæus, Patella, &c.

And upwards of 300 specimens of European Coleoptera.

Dr. Morton deposited eleven crania of native Africans, from the vicinity of Liberia, presented to him by Dr. Goheen; also a single cranium from the vicinity of Wilkesbarre, Pennsylvania, supposed to be that of a Nanticoke Indian, and presented to Dr. M. by Mr. W. S. Vaux.

Dr. Morton also presented from Gen. Irick, of New Jersey, several perfect teeth of the head of the fossil *Crocodilus clavirostris*, Morton,* recently found near Vincentown.

Dr. Gould, of Boston, presented in person about 60 specimens of the following shells:

Siphonostoma porrecta, Gould, Cuba; Siphonostoma lactaria, Gould, do.; Modiola variosa, Gould, Burmah; Caracolla anceps, Gould, do.; Clausilia Cochin-chinensis, Pfeif, (insignis, Gould,) do.; Cyclostoma sectilabrum, Gould, do.; Pupa capitata, Gould, Liberia; Fusus pygmæus, Gould, Massachusetts; Cingula aculeus, Gould, do.; Skenea serpuloidea, do.; Pupa servilis, Gould, Cuba; Helix seteriga, Gould, Sandwich Isles; Helix infrendens, Gould, Burmah; Amnicola gracilis, Gould, Hot Springs, Virginia.

A letter was read from J. G. H. Kinberg, dated Lund, Sweden, addressed to Mr. Cassin, as Curator, in reference to the speci-

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*Described by Dr. Morton in the last number of the Proceedings.

mens of natural history above announced as received in exchange.

Dr. Morton read a communication from Dr. Alfred T. King, of Greensburg, Pennsylvania, and intended for publication, in relation to the fossil foot marks found in his vicinity, casts of which were presented by him at a late meeting of the Academy. Referred to the following Committee: Dr. Morton, Mr. Phillips, and Mr. Cassin.

Dr. Morton submitted the following observations on the measurements of the internal capacity of the crania deposited by him this evening.

In the Society's Proceedings for December, 1841, I communicated the result of the internal measurement of forty-five skulls of native Africans, of the Bassa, Grabbo, Makoua, Benguela, Mina, Mozambique, and other but undetermined tribes. Those measurements gave 85 cubic inches for the internal capacity of the cranium or size of the brain. More recently I have received, through the kindness of Dr. Goheen, twelve additional skulls of native Africans, of which ten are adult, and afford the following measurements:

The largest heads in the series are those of two Kroomen, which afford respectively a capacity of 92 and 95 cubic inches. The smallest head, that of a female, (tribe unknown) measured but 65 cubic inches, which is the smallest adult cranium I have hitherto met with; while the mean of all gives a fraction more than 84 cubic inches. Of this series of heads, nine are male, and one is female; and they are derived from the Kroo, Golah, Pessah, Dey, and Eboe tribes.

In addition to these, I possess a single female Hottentot skull, which measures 68 cubic inches; and if we take the mean of the whole adult series of fifty-six crania, we find it to be about 85 cubic inches, which may be assumed as the average bulk of the brain in the Negro race; thus confirming, in a very satisfactory manner, the results of my previous observations.

Meeting for Business, and Annual Meeting.

December 31, 1844.

VICE PRESIDENT MORTON in the Chair.

The Committee to whom was referred the following paper by Dr. Hallowell, read November 5, 1844, reported in favor of publication.

Description of New Species of African Reptiles.

BY EDWARD HALLOWELL, M. D.

COLUBER *Phillipsii.*

Description.—Head elongated, flattened, covered above with nine plates; the rostral plate is hexagonal, rounded above, incurvated beneath; there are two anterior and two posterior frontal plates; the anterior are pentagonal; their posterior margin is the broadest. The posterior frontal are very large, pentagonal; there are two supra-orbitar, and one vertical plate; the supra-orbitar are of moderate size, the occipital are very large, triangular; there are two nasal plates, with the nostril placed between them; there is an anterior orbitar, and a loral plate; there are two posterior orbitar plates; the eyes are large, the neck is narrow, the body is long and tapering, the scales upon the body are smooth and quadrangular; the tail is of moderate length.

Colour.—Body and tail greenish-olive above, with numerous black points; chin and throat light yellow; under surface of abdomen and tail tea-green. Abdominal scuta 172: subcaudal 22.

Dimensions.

	Feet.	*Inches.*
Length of head, - - -	0	1
Greatest breadth posteriorly, - -	0	½
Length of body, - - -	3	0
Length of tail, - - -	0	3½

This species I have named after my friend John S. Phillips, Esq.

BUFO *cinereus.*

Description.—Head small, body of moderate size, covered with numerous small warts; head and body of a light ash colour, with numerous dark coloured spots or blotches; under surface of chin, abdomen and limbs, light yellow; irides ———.

Dimensions.

	Inches.
Length of body, - - - -	2
Length of head, - - - -	½
Breadth, - - - - -	½
Length of anterior extremities, - -	1
Length of posterior, - - - -	1½
Length of tarsus to extremity of longest toe, -	1

PLESTIODON *Harlani.*

Description.—Head of moderate size, covered above with plates; of these the rostral is large, and rounded above; there are two nasal plates, with the nostril placed between them; the vertical is large, elongated, hexagonal, incurvated laterally; there are six supra-orbitar plates: there are two anterior orbitar with a loral placed between them and the nostril; there is one posterior orbitar and three inferior orbitar; there is a posterior frontal, which is large and pentagonal; there is a small quadrangular plate intermediate between the posterior frontal and the first supra-orbitar plate; there are six superior labials; the scales upon the back and sides of the body are hexagonal, presenting three striæ upon their surface; there are eight rows of smooth, hexagonal scales upon the abdomen, and five upon the under surface of the tail; tail cylindrical, covered with numerous hexagonal scales; extremities short and thick.

Colour.—Head, neck, and upper part of body light brown; sides of body presenting numerous dark colored bands, extending from the back to the abdomen; the intermediate spaces are white; abdomen and under surface of tail, of a light yellow color.

Dimensions.

	Inches.
Length of head, - - - -	1¼
Breadth of head posteriorly, - - -	¾
Length of body, - - - -	4
Length of tail, - - - -	5½
Length of extremity to extremity of longest finger,	1¼
Length of posterior extremities, - -	1¾

This species I have named after the late Dr. Harlan.

DIPSAS *Blandingii.*

Description.—Head of moderate size, rather large, covered with nine plates, the central is large, pentagonal, broad in front; the supra-orbitar are pentangular; they are curved inferiorly for the reception of the superior margin of the eye; there are two anterior and two posterior frontal plates; the posterior are quadrangular, larger than the anterior; the anterior are quadrangular; the rostral plate is large; there are two nasal plates, the anterior the largest, with the nostril placed between them; there are two anterior orbitar plates, and two posterior; the anterior are quadrangular; the eye is large and projecting; between the nostrils and the anterior orbitar plates is a loral plate which is quadrangular: there are five temporal plates, the posterior of which is the largest; there are nine superior labials, of which the eighth is large and quadrangular; the posterior part of the head is covered with scales; the body is long, thick in the middle: the neck is slender; the scales of the body are smooth and quadrangular, with the exception of a row along the middle of the back, which are hexagonal.

Colour.—The superior and under parts of the body are light yellow; the body presents upon each side a series of blotches, of a leaden colour; the upper part of the head is light bluish; the throat and jaws are yellow. Abdominal scuta 272: subcaudal 131.

Dimensions.

	Feet.	Inches.
Length of head,	0	1½
Breadth,	0	¾
Length of body,	4	0
Length of tail,	1	3½

Habitat.—Liberia, West Africa.

The above specimen was placed in my hands by my friend Dr. Blanding, in whose honor I have named it.

TROPIDOLEPIS *Africanus.*

Description.—Head of moderate size, quadrangular, depressed in front, supra-orbitar ridges much developed; there is a ridge extending from the eye to near the extremity of the snout; the nostril is small, circular, placed nearer the extremity of the snout than the anterior margin of the orbit; between this ridge and the superior margin of the under jaw there is a depression, which is well marked; the tympanum is of a moderate size, depressed, at some distance below the level of the surrounding surface. There are twelve quadrilateral plates extending along the margin of the upper jaw. The rostral plate is hexagonal. There are eleven or twelve small quadrangular plates along the under margin of the under jaw. The head is covered with imbricated, polygonal scales; those upon the front and posterior part of it are strongly carinated; the vertical plate is hexagonal. The eyelids are covered with numerous small granules. There are two folds under the neck, which are well marked. The body is covered with quadrangular scales which are carinated. The tail is flattened beneath, rounded above and upon the sides. It exceeds the length of the head and body by about one inch. The abdomen, and under surface of the throat are covered with small quadrangular scales, which are also carinated; those upon the chin are smooth. The submental plate is smooth, pentagonal. The anterior extremities, when extended along the sides of the body, meet as far as the thighs. The posterior exceed the anterior extremities by the whole length of the toes and tarsus. The under surface of the legs, feet and tail, are covered with scales, which are strongly carinated. There are thirteen præanal pores. There is a small crest, extending from the occiput along the neck, and between the shoulders.

Color.—Head brownish above; superior parts of body, tail and extremities of a leaden ash color. The same color predominates upon the under surface of the chin and upon the abdomen. Under surface of thighs, legs and tail, light straw color.

Dimensions.

	Inches.
Length of head,	1
Breadth posteriorly,	¾
Length of body,	2¼
Length of tail,	4¼
Length of anterior extremities,	1¼
Length of posterior extremities,	2¼

LEPTOPHIS *viridis*.

Description.—Head of moderate size, covered above with nine plates, which are smooth: the rostral is hexagonal; the anterior frontal are pentagonal: the posterior frontal are larger than the anterior; they are hexagonal: there are six circum-orbitar plates, the anterior of which are the largest: the supra-orbitar plates are large: the vertical plate is also large and hexagonal, the anterior margin is the broadest: the occipital plates are large and pentagonal: there are eight superior labial plates, the seventh of which is the largest: the body is slender, covered above with quadrangular scales, which are smooth: the tail is covered above with numerous small hexagonal scales: those upon the under surface are bifid.

Color.—Green upon the under surface of the body and tail; under surface of chin, neck and throat, of a light cream color.

Dimensions.

	Feet.	Inches.
Length of head,	0	1
Greatest breadth,	0	$\frac{5}{6}$
Length of body,	1	5½
Length of tail,	0	5

Abdominal scuta, 211: subcaudal 107.

COLUBER *ater*.

Description.—Head of moderate size, covered above with nine plates: the anterior frontal are triangular; the posterior are large, and pentagonal; the vertical plate is also pentagonal; the supra-orbital plates are quadrangular; the occipital plates are large; the rostral plate is quadrangular, its superior margin being rounded where it is joined to the anterior and the nasal plates; there are two nasal plates, with the nostril placed between them; there are eight superior labials: the eyes are of moderate size, and projecting; irides ——; the neck is slender, the body rounded, covered above and upon the sides with quadrangular carinated scales; tail of moderate length, tapering, rather more than one-fourth the length of the body. Abdominal scuta 144: subcaudal 72.

Color.—Head jet black above; body dark brown, approaching to black, with numerous irregular black bands, placed at unequal distances, extending as far as the abdomen; throat, chin, and under parts of body light green, clouded with numerous dark colored spots; under part of tail dark brown, approaching to black.

Dimensions.

	Inches.
Length of head,	¼
Breadth,	$\frac{5}{16}$
Length of body,	9¾
Length of tail,	3½

The above species are all from Liberia, West coast of Africa. They were brought to this country, with one exception, by Dr. Goheen, and put in the possession of S. S. Haldeman, Esq., of Columbia, Pennsylvania, to whose kindness I am indebted for the opportunity of describing them.

The Committee on Mr. Conrad's paper on new fossil shells of the United States, reported in favor of publication.

Descriptions of eight new Fossil Shells of the United States.

By T. A. CONRAD.

Miocene Species.

CREPIDULA.

CREPIDULA *cymbæformis*. Elliptical, very profound or ventricose; thick about the region of the beak; apex inclined towards the left margin, acute, separated from the margin of the aperture; umbo compressed, prominent: aperture dilated above the middle and rapidly narrowed towards the end opposite the beak; diaphragm concave and remote from the margin. Length 1¼ inch.

Locality. Petersburg, Virginia.

The boat-shaped outline of this shell serves to distinguish it from its congeners. It is the deepest or most ventricose of all the smooth species of the Union.

Eocene Species.

CARDITA.

CARDITA *densata*. Obliquely cordate, ventricose, thick, with about twenty-five flattened costæ, obsolete towards the base, narrow, profound, elevated and crenulated on the umbo; umbo very prominent at the apex; anterior basal margin obliquely subtruncated; posterior extremity truncated, direct; cardinal area very thick and dilated, the teeth oblique. Height 1¼ inch. Length the same.

Locality. Claiborne, Alabama.

This pretty species abounds in entire specimens in the argillaceous stratum near low water mark in the Claiborne Bluff. I found none in the upper beds. Compared with C. *planicosta*, it is much smaller, comparatively shorter, thicker, and may always be readily distinguished by the crenulated ribs on the umbo.

CYTHEREA.

CYTHEREA *subimpressa*. Ovate, slightly ventricose, smooth and polished, with concentric slightly impressed lines on the anterior side; anterior side short, rather acutely rounded; posterior side produced, acutely rounded at the extremity; dorsal margin long, oblique, slightly curved; beaks prominent; lunule lanceolate, defined by a slightly impressed line. Length 1¼ inch. Height $\frac{8}{10}$ inch.

Locality. Marlbourne, Hanover county, Virginia. Mr. Ruffin.

This species may be distinguished from C. *æquorea*, by its greater comparative length, smaller size, and in wanting the strong furrows of that species. Mr. Ruffin obtained several entire specimens.

C. *liciata*. Suboval, thin and fragile, convex-depressed, surface with minute, closely arranged concentric lines; anterior margin rather acutely rounded; posterior margin obtusely rounded or subtruncated obliquely outwards, the extremity rounded: lunule lanceolate, defined by an obscure line; beaks prominent, and profoundly curved towards the anterior margin. Length 1 inch. Height $\frac{8}{10}$ inch.

Locality. Marlbourne, Hanover county, Virginia. Mr. Ruffin.

This species is related to the C. *ovata*, Rodgers, but is more compressed, less dilated posteriorly, the striæ more numerous and distinct on the middle of the valves, while the *ovata* has there only lines of growth.

C. *eversa*. Suborbicular or lentiform, ventricose surface with fine, closely arranged concentric lines; anterior and posterior extremity rounded; basal margin profoundly rounded, and forming a regular curve from the extremities; umbo broad, with a prominent apex; lunule ovate-acute, marked by a well defined impressed line; cardinal teeth robust. Length 1$\frac{1}{2}$ inch. Height 1$\frac{1}{4}$ inch.

Locality. Marlbourne, Hanover county, Virginia.

This shell has much the exterior aspect of an ARTEMIS. Mr. Ruffin has one specimen with both valves. It occurs at Marlbourne, the residence of Edmund Ruffin, Esq., who is making important investigations in the Eocene deposits of that locality. He has kindly sent me beautiful specimens of *Cardita planicosta* and *Cardium Nicolleti*, together with the new species of CYTHEREA above described.

C. *pyga*. Suboval, ventricose, thick, with closely arranged robust concentric lines; umbo wide, prominent above; dorsal margin very oblique, rounded; posterior extremity obtusely and obliquely rounded inwards; anterior extremity much narrower than the posterior, and more acutely rounded; lunule lanceolate, defined by a distinct impressed line; cardinal teeth robust. Length 1$\frac{1}{2}$ inch. Height 1$\frac{1}{4}$ inch.

Locality. Potomac river, Stafford county, Virginia. Mr. Bruff.

I am indebted to Mr. Bruff, of Washington, for an opportunity to describe this species. The specimen is a right valve, very perfect, and in outline has some resemblance to C. *liciata*, but is larger, thicker, more ventricose, with much wider umbones, &c.

PECTEN.

PECTEN *elixatus*. Suborbicular, inferior valve ventricose, with fourteen wide, elevated, rounded ribs, and with concentric wrinkles. Height 1$\frac{1}{2}$ inches.

Locality. Near Santee canal, South Carolina.

Occurs in friable limestone.

Carboniferous species.

BELLEROPHON.

BELLEROPHON *scissile.* Dilated, profoundly ventricose from the margins of the aperture, and with coarse, transverse, irregular lines; back subangulated medially and with a medial channel, angulated and slightly carinated on the margins, the channel profound from the margin of the aperture to the middle of shell, and obsolete on the other portion of the back. Length 2 inches.

Locality. St. Genevieve.

The Committee on a communication from Dr. Alfred T. King, of Greensburg, Pennsylvania, describing fossil foot marks recently discovered in his vicinity, reported in favor of publication.

Description of Fossil Foot Marks, supposed to be referable to the classes Birds, Reptilia and Mammalia, found in the carboniferous series, in Westmoreland county, Pennsylvania.

By ALFRED T. KING, M. D.

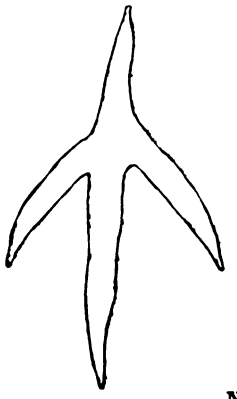
The petrifaction of tracks of animals once almost universally doubted, is now no longer a problem to be solved, and Ichnology or Ichnolithology is admitted as a distinct branch of Palæontology. It is but an extension of the principle of Cuvier, who proved experimentally, "that when we find merely the extremity of a well preserved bone, we are able, by a careful examination, assisted by analogy and exact comparison, to determine the species to which it once belonged, as certainly as if we had the whole animal before us." Professor Kauss, of Germany, Rev. Dr. Duncan, of Scotland, and Professor Hitchcock, of Amherst College, have described various and singular foot marks in the upper new red sand stone, but so far as my information extends, they have never found either the inhumed bones, or any other decided indications of the existence of *Birds*, *Reptilia* and *Mammalia*, as early as the carboniferous period. If I am correct in this statement, the discovery which I am about to announce of the vivid imprint of the feet of animals referable to these classes, and to this epoch, must be regarded with no ordinary interest by geologists.

If the discovery of bird tracks by Professor Hitchcock, in 1836, as low as the upper new red sand-stone, was received with skepticism by geologists, their doubts may now be renewed with increased strength, when it is announced that birds existed analogous to our *Grallatores*, and left their foot marks in arenaceous mud, ages anterior to the deposite of the sand-stone of Connecticut river.

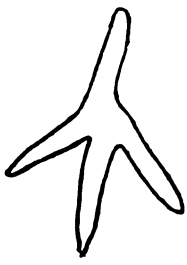
Professor Hitchcock originally denominated the bird tracks which he

described *Ornithichnites*, or stony bird-tracks, but afterwards changed the name to *Ornithoidichnites*, or tracks resembling those of birds. I am unable to perceive the propriety of this change, inasmuch as it is universally conceded that the tracks were made by birds. I trust, therefore, I shall be pardoned for making use of the original, and in my view, more correct and appropriate term, *Ornithichnites*.

The first track which I shall describe is one evidently made by a bird, referable to the order *Grallae*, and allied to our Gallinules. I shall therefore call it the



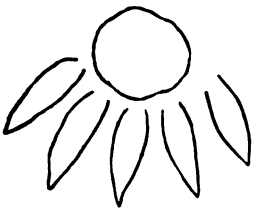
No. 1.* ORNITHICHNITES *gallinuloides*.—Toes 4, three before, pointing forwards, almost entirely separate, leptodactylous; middle toe much the longest; spread of lateral toes 95°; hind toe pointing directly backwards (on one foot slight inclination inwards) on the same plane with the front ones; all the toes have long and pointed claws; length of the foot about *nine* inches; length of the step not easily determined, as it seemed to vary from two to fifteen or eighteen inches.



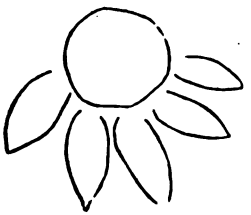
No. 2. ORNITHICHNITES *Culbertsonii*. I have named this impression after my friend Alexander Culbertson, Esq., a gentleman of acute and penetrating mind, an accurate and original observer of all subjects pertaining to either morals or physics, and who had the kindness first to direct my attention to these singular bird tracks. The toes are 4, and much resemble the preceding, but the hind toe is longer; the front ones spread at an angle of 70°; length of the foot 4½ inches; length of the step uniformly 11 inches. The tracks were nearly in a straight line, and traceable over ten or twelve feet surface, the last step leaving a vivid imprint on the perpendicular side of the stone. This seems to indicate that the position of the rock has been changed since these birds walked upon it, and left their foot prints upon the then plastic mud, for the wonder and speculation of man in after ages. Ordinary observers have uniformly compared these tracks to those made by wild turkeys; but it does not require much ornithological knowledge to detect

* This, and the succeeding cuts, are one-fourth of the size of the original drawings.

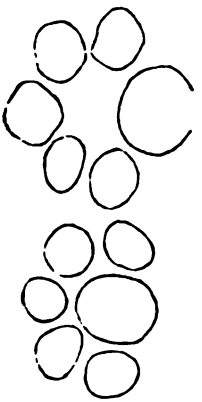
the incorrectness of this opinion. The hind toe of all gallinaceous birds is comparatively short, and is articulated with the tarsus higher than the rest. When the bird is walking, this toe, therefore, scarcely touches the ground at the tip. In one stony track the hind toe is long, on the same level with the front ones, and the imprint is deep and vivid.



No. 3, I imagine, is the track of an immense Saurian reptile, for which I suggest the name of THENAROPUS* *leptodactylus*. The toes are five, slender, spreading, like an open fan, 160°; they are two inches long, with distinct claws; the extreme spread five inches, leaving an interval of one inch between each toe; the ball of the foot is spherical, and near 2½ inches across it.



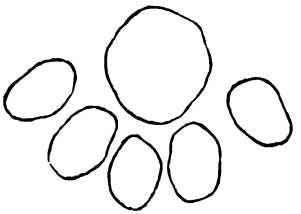
No. 4 is the THENAROPUS *pachydactylus*. Toes are five, short and thick; the imprint is deep; the spread of the toes 5½ inches. The track resembles somewhat the preceding, but the toes are shorter, thicker, the imprint is deeper, and the foot is considerably larger.



Nos. 5, 6. I am unable to form even a probable conjecture in regard to the class of animals to which it should be referred. There is certainly some resemblance to the order *Digitigrada*, but as it is extremely improbable that these animals should be associated with aquatic birds and saurian reptiles, or that they should be even represented at this early period of our planet, during its half finished condition, and while the proportion of land to water must have been far less than what it is at the present day, I have almost abandoned the idea. It may have been an animal in some respects allied to the *Hippopotamus*. At all avents, I shall venture the provisional name of THENAROPUS *sphærodactylus*. Toes are 5, spherical, arranged in a circle, spreading acout 240°, or two-thirds of a circle. The ball of the foot is

*From θεναρ, a *palm*, and πους, a *foot*—a palm-footed animal; which generic name may serve, at least provisionally, for several others of this series of footmarks.

spherical, and about one and a half inches across it. The track is four inches in its transverse and conjugate diameters. In the specimen before us, the ball of the foot is situated in the centre, the toes spreading regularly around it; but in some it stands out behind and completes the digital circle.



No. 7. THENAROPUS *ovoidactylus*. Toes 5, ovoid, spreading about 240°. This is evidently the track of a very large animal. Each toe is about an inch long, and their spread near six inches. The ball of the foot is about two and a half inches across it.

The stone on which these tracks were found has an exposed surface of fifteen by twenty feet, rising like the other rocks in the neighborhood to the west, and dipping at a small angle to the east. It is a coarse grained sand stone, about 150 feet beneath the largest of our coal seams, and near 800 feet beneath the topmost stratum of our coal formation. From the fact of the existence of numerous holes or pots, some of which will hold fifteen or twenty gallons, excavated, as we know they are at the present day, by the whirling of pebbles, set in motion by a running stream, I infer that the stone must have lain in the bed of a river which was subject to partial periodical desiccation. These pots, which bear a striking resemblance to those now found in our neighboring rivers, particularly the Youghiogheny, were the objects of curiosity to the people of the neighborhood for years; but the tracks, though often noticed, were comparatively unimportant, as they presumed they were made by dogs, bears, wild turkeys, and other animals belonging to the present order of animated nature.

To the geologist, however, they are of more interest. He looks through the long vista of time which has elapsed since the stone on which these tracks are now found was plastic sand or arenaceous mud—contemplates its consolidation into stone—the subsequent excavation of these pots by whirling pebbles—the deposition of sandstone, limestone, shale, and numerous beds of coal, amounting, in all, in this vicinity, to about 800 feet. And after all these various changes, which required hundreds, and perhaps thousands of years to accomplish, he views with his mind's eye the vast agency, the overwhelming power, which doubtless convulsed the whole western continent, contorting the crust of the earth, and upheaving our vast Apalachian chain of mountains, extending from New York to Alabama, and at the same time throwing the main strata into beautiful folds, or elongated anticlinal roots. And finally, he contemplates the slow upheaval of the continent from the bed of the primeval ocean—the subsidence of the waters—the quiescence of the earth—and the various successive races of animals and plants, both visible and microscopic, which preceded the present order of animated

existences. All this, doubtless, occurred, and probably in the order we have mentioned; since these animals sported in their native elements, basked on the oozy shore of a river or an ocean, and left the vivid imprint of their feet in its plastic mud. These are a few inferences from established data, which give beauty to geology, interest to these foot marks, and which are well calculated to impress the mind with sublime and stupendous conceptions.

In another locality, about twelve miles distant, but in the same synclinal axis, on a slab of fine grained micaceous sandstone, which was taken from a quarry about fifty feet beneath the rock already described, I found beautiful imprints of hind and fore feet of an animal which I have ventured to refer to the *class Mammalia*, and *order Marsupialia*. The hind and fore feet are obviously different. On the hind foot the toes are five; on the fore foot there are but four; the plantar surface on the hind foot is long, narrow, and terminates in a distinct heel; the fifth toe, whose imprint is faint, stands out almost at a right angle with the foot, and much resembles the human thumb. Indeed, the whole track does not look unlike the imprint of the human hand. The length of the foot is five and a half inches; the extreme spread of the toes five and three-quarter inches; the interval between the toes is from one, to one and a half inches; length of the toes three inches. The fourth toe on the fore foot stands out obliquely, like the fifth toe on the hind foot; length of toes two and a-quarter inches; length of the foot four and a half inches; the extreme spread of the toes four and three-quarter inches; the interval between the toes from one to two inches; the nails are quite distinct. At the external side of all the tracks there is a protuberance, which resembles the rudiment of another toe. The plantar surface is round and full, and seems to indicate that the greatest weight of the animal was before; at all events, the fore feet seem to have sunk more deeply into the plastic mud on which these animals sported in the pristine ages of the world. The tracks were in *relief*. I found but one that was in *bas relief*. The fore and hind foot follow each other very closely, there being an interval of only about two inches between them. The length of the step was about twenty inches.* I have given the average size of these truly remarkable tracks, but a few were discovered, though not very distinct, at least two or three inches larger. The slab was large, and contained twelve or fourteen very vivid imprints, together with many that were not so distinct.

The discovery evidently conflicts with an hypothesis long since thrown out, and still maintained by distinguished geologists, that the atmos-

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* The apparent shortness of the animal in proportion to the size, (for it must have been large,) the sluggishness of its movements—which may be inferred from the fact of the feet not tracking together, and the difference in the number of toes on fore and hind foot—seem to indicate an alliance with the *Batrachia*.

phere, during the carboniferous period, was essentially different from what it is at present. It was supposed that it contained a much larger amount of carbonic acid gas, which, by absorption, caused the rapid and enormous growth of the coal plants. This could not have been, since we now find that lung-breathing animals existed at the same epoch.

The Reports of the Corresponding Secretary, of the Librarian, and of the Treasurer of the Publication Committee, were severally read and adopted.

The Report of the Treasurer was read, and referred to the Auditors.

The Recording Secretary read his Annual Report, which was, on motion, referred to the Committee on Proceedings.

REPORT

OF THE RECORDING SECRETARY,

For 1844.

The original design in requiring from the Recording Secretary of this Society an annual Report of its transactions, may be considered now as nearly superceded by the plan adopted within the last few years of publishing its "Proceedings" at short intervals. In addition to the various written and verbal communications made to the Society, this periodical contains extracts from the minutes of all other matter which the committee, having charge of its publication, may deem useful or important to be made known.

Its pages may, therefore, be appealed to with confidence, for affording abundant information to enable all who may choose to examine them, to form an opinion of the character of its transactions, and of the degree of progress which it has made in a twelve-month.

The present report will, therefore, merely contain a short summary of the contents of the Proceedings of the present year, together with a few additional facts, not generally familiar to the members, and which may perhaps be interesting to them.

Perhaps, at no period since its organization, have the standing and prospects of the Society afforded higher gratification to its members, than at present. The cabinet has been enhanced in value and utility by an unusual amount of contributions to its various departments, in some of which, in fact, should the increase continue in the same ratio for a few years longer, there will be little or nothing for the Institution to desire. New and neat ranges of cases have been constructed within the last few months, for accommodating the large additions of books and specimens. Every gallery is now occupied, and we have at length the satisfaction of seeing the interior arrangements of this spacious and commodious Hall completed in accordance with the design originally contem-

plated. For the accomplishment of these desirable objects, the Society is indebted to the active efforts of the Curators, and other members.

In number, variety, and aggregate value, the communications to the Society in 1844, which have been published, will more than bear comparison with those of any previous period, and furnish additional proof of the fact stated in former reports, that this mode of publication is annually increasing in importance and advantage to it, and is therefore eminently deserving of its continued attention and care.

The report of the Treasurer will show that some financial arrangements have been effected by him during the year, materially benefitting the Society; and that the efforts of this officer are still zealous and constant to secure to it whatever advantages circumstances may place in his power.

It is doubtless still within the recollection of most of those present, that the long pending claim of the Society for $5,000 upon the heirs of an estate, (being the amount of a mortgage upon the latter, presented to the Academy by its late President, William Maclure,) was settled in the course of last year by a compromise between the parties, the Academy agreeing to accept from the heirs, in payment of the claim, about $4,550, in Pennsylvania five per cent. stock, at its original value. Mr. Alexander Maclure, desirous of carrying out the wishes and intentions of his brother to the full extent, tendered to the Academy, a few months since, the difference between the original claim and the amount accepted from the heirs. This sum, about $450, has been received, and is now in the Treasury. The Academy owes its sincere thanks to this gentleman, both for his promptness and the generous motives which influenced him in this matter. The State stock still remains in the hands of the Treasurer, under the hope, which recent circumstances have contributed to strengthen, that its par value will ultimately be realized by the Academy.

The donations to the Museum, in the different departments, have been numerous and valuable, as has been already stated.

Of the *Mammalia*, donations of skins and mounted specimens have been received from Dr. Wm. Blanding, Dr. Reynell Coates, Oliver Evans, Esq., Mr. Kilvington, and also a number in exchange.

The contributions and additions to the *Ornithological* collection have been remarkably numerous and valuable. They have been derived chiefly from Mr. Cassin, Dr. Watson, Dr. Blanding, the late Dr. Wesley Johnson, of Liberia, Dr. Kane, U. S. N., Mr. Woodhouse and others. A number of fine bird skins from Brazil, were purchased by subscription; and recently, a large addition has been obtained from Sweden, in exchange.

The members are generally aware of the fact, that the Academy has possessed, for several years, a large and rapidly increasing collection of bird and quadruped skins. Many of these were rare and valuable; the gifts of correspondents and friends of the Institution, to some of whom it has been at all times indebted for contributions to its collections. With all the precautions which may be taken, these skins cannot be entirely protected from injuries from insects, dust, and other causes, and the Curators therefore promptly embraced an opportunity, fortunately afforded a few months since, of employing a competent taxidermist, and upon such favorable terms, as to entrust to him the prepa-

ration and mounting of specimens of all such species as were not already displayed in the Museum. This individual has now been employed regularly up to the present time, and has accomplished a large amount of work in a very short period, and with much satisfaction to the Curators and the Zoological Committee. The whole number at present mounted and nearly ready to be deposited in the cases, is 219. Of these 172 are birds, and the remainder quadrupeds.

So large an accession of mounted specimens to the Museum, necessarily required additional accommodations, and accordingly a new and beautiful range of cases is now being erected, occupying the entire length of the lower gallery on the north side of the Hall.

I have great pleasure in stating here, that the entire expense incurred in both these improvements, has been defrayed by voluntary contributions from the members alone—to some of whom the Academy is under especial obligations on this occasion. In fact, the spirit of liberality which has always characterized the members of this Institution, has been equally displayed in this undertaking, as in many others, having for their object real advantage to it, and permanent utility.

Of Reptiles, Fishes, and Crustacea, donations have been made by Dr. Watson, Dr. R. Coates, Capt. H. F. Baker, Wm. L. Bispham, Esp., J. Dundas, Esq., Mr. J. G. Howard, Dr. Day, of Liberia, &c.

The *Entomological* collection has received numerous additions during the year. From the Rev. Dr. Thomas F. Savage of Africa, a number of very fine insects of that country; from Dr. Thos. B. Wilson of Delaware, a considerable collection of very perfect American insects; a collection of British Lepidoptera, from Mr. Cassin; and smaller donations from other individuals. By purchase and exchange, there have also been obtained a very beautiful and numerous collection of Brazilian insects, a number of fine American Lepidoptera, and within the past two weeks, about 300 specimens of European Coleoptera.

In the last report I stated that an effort was being made not only to improve and increase the Entomological collection, but also to secure it, if possible, from the constant injuries and losses to which it had been hitherto liable. The plan then proposed for the latter purpose has been since adopted, and there is every reason, at present, to suppose that it will prove effectual.

The interest already taken by the members in the improvement of this department has been such, that the number of specimens has rapidly increased within a short period, and the collection promises to equal very soon, both in size and value, any of those in the other departments. The whole of the Coleoptera which it contains are now undergoing revision, and an arrangement of the genera after the most modern system. The Academy is indebted, for this advantage, to our fellow-member, Mr. Haldeman, who has voluntarily undertaken this task, and upon whose known accuracy and intimate knowledge of the subject the most implicit reliance can be placed.

We would again beg leave to call the attention of the members and correspondents of the Institution to this subject, and to request their further aid in the present effort to improve an interesting department of the Society's cabinet.

To the collection of *Shells*, the following are the principal donors during the year: Mr. J. G. Anthony, of Ohio; Rev. Dr. Savage, of Africa; Mrs.

Lucy W. Say, Mr. Peterson, Mr. Haldeman, and Dr. Gould of Boston. Others have been derived from Dr. Mighels of Maine, Mr. Cassin, Dr. R. Coates, Capt. Baker; and recently a very large accession has been made through exchange.

Of *Fossils*, the donations this year have been fewer than usual. A most interesting one, however, was that by Gen. Irick, of Vincentown, N. J., of the head of a fossil crocodile discovered in the vicinity of that place, and which has formed the subject of a paper by Dr. Morton, who has regarded it as new. Another donation of much value has recently been received from Dr. Alfred T. King, of Westmoreland county, in this State, of fossils from the carboniferous limestone of that region.

The collection of *Crania* possessed by Dr. Morton, has been increased during the present year by many additions of great value and interest. This collection is now of such extent as to require, for its display, the entire range of cases on the south flying-gallery, which have been resigned to Dr. Morton for this purpose. It numbers about 600 crania, derived from all the races of man, ancient and modern, and 640 crania of the lower orders of animals, forming an aggregate believed to be greater than is possessed by any other individual living.

Additions to the *Mineralogical* cabinet have been made by Messrs. Ashmead, Johnson, H. S. Stevens, Rice, Woodhouse, Kendal, Mease, Prof. Durbin, and others. But the most important and valuable donation to this department during the present, or perhaps any previous year, has been that of an entire suite of the minerals of Cumberland, Durham, Westmoreland, and other counties of England, by our fellow-member, Dr. Thomas B. Wilson. This beautiful collection was obtained by this gentleman during his recent visit to that country, and was presented to the Academy immediately upon his return home. It has greatly enriched our Cabinet, and the donor well deserves and has received the sincere thanks of the Society.

In *Botany*, some donations of value have also been received. They are chiefly from Dr. Englemann, of native Western plants; from the late Dr. Westley Johnson, of African plants; and from Mr. Jacob Snyder, Jr., of this city, of Alpine plants; besides which, are smaller donations of fruits, seed vessels, single specimens of plants, &c., from a number of contributors.

The additions to the *Library* during the present year are as follows: Folios, 4; Quartos, 26; Octavos, 16; Periodicals, (including Journals, Proceedings of Societies, &c.,) 35; Publications in pamphlet form, 36; and Maps and Charts, 4. Of the whole number, 46 have been received from authors and editors, 27 from members, and 50 from Correspondents, Societies, &c., and also in exchange. The average is about equal to that of late years.

One of the new ranges of cases erected this season, to which reference has been made at the commencement of this report, was for the use of the Library. The rapid increase of the latter has required this addition for some time past, a large number of volumes having been crowded out of view, for want of room in their appropriate places, and their existence in the library scarcely known to the members. These have now been restored to their proper situations, and a

more general distribution of the books has been made by the Library Committee. Labels have been also placed over each case, indicating the nature of its contents, and indeed the whole arrangements of the Library, as now made, add greatly to its facilities.

In an Institution like ours, a Museum, however extensive and systematically arranged, would obviously be of comparatively little advantage, without a corresponding Library of well selected works on subjects of Natural Science. To render it entirely available, as few restrictions as possible should be placed upon it; and this has always been the object and aim of the Society. Access to the books is at all times freely permitted to the members, and a large proportion of them are allowed to be taken from the Hall. But experience has lately proved that these privileges are not without some disadvantages. The Library Committee, while engaged in the duty just mentioned, (of re-arrangement of the books,) discovered that a considerable number were missing. Some of them are works of much value, and which cannot easily be replaced; and although it is highly probable that many may be recovered through proper efforts, the fact stated would seem to render it incumbent upon the Society to inquire, whether the present regulations, if properly complied with by the members, are sufficient for the security of the Library, or whether some further restrictions are necessary.

From a hasty examination of the Librarian's book of entries of additions to the library, since the publication of the catalogue in 1836, the number may be estimated at nearly 700, including all except maps and charts. If this number be added to those stated in a report of the Library Committee accompanying the catalogue, to be in the possession of the Academy at the above period, the total now in the Library, including duplicates, would be little short of 8,000. From this estimate, the collection of maps and charts, now numbering about 500, is excluded.

Of the entire number of works in the Library, upwards of 1,500 are exclusively on subjects of Natural Science, about 1,200 others are journals and dictionaries, a large proportion of the contents of which are on similar subjects, and are highly important and often indispensable as works of reference.

Although, with such a collection of works at his command, the resources of the student of natural history would seem to be ample enough, yet our Library is greatly deficient in modern standard publications in almost every department. Industrious and active laborers in the cause are now so numerous throughout the world, and the field for investigation still so extensive, that new discoveries are constantly made, new truths developed, and even materials for the formation of new systems collected. To enable our Library to keep pace with the rapid progress of modern Science, it would be necessary for a Library fund to be established—a measure which the Society has always had in view—and placed in the hands of a competent committee, willing to undertake the duty of impartially selecting from the numerous publications of the day, such as would be of the greatest practical value to the Institution.

This subject is not now referred to with the object of urging it upon the Society, or even with the expectation of any action on it at present, as it involves an expenditure which, at this time cannot be incurred; but it deserves

to be always kept in view, and should engage the attention of the Society whenever practicable, as the one now most important to its interests.

The "Proceedings" are now so closely identified with the character of the Society itself, that a brief sketch of the contents of those numbers which have appeared during the year, can scarcely be omitted in an annual report.

The support which this publication has received since it originated in 1841, has been highly encouraging, and this has increased during the present year. The second volume was commenced on the first of January last, since which time five numbers have been issued, and the sixth is now in press, and nearly ready for distribution. Together, these numbers will contain between 180 and 190 pages of matter, (much of which is in small type,) published in twelve months. This proportion is larger than in any previous similar period since this periodical was commenced by the Society.

The first number contains a highly interesting letter from I. G. Strain, Esq., U. S. N., one of the correspondents of the Institution. While at Rio Janiero, towards the close of last year, awaiting the completion of his preparations for making a hazardous journey of exploration into the interior of Brazil, he devoted a portion of his time to the translation of an important paper, which had been communicated by Dr. Lund, of Copenhagen, to a Scientific Society of Brazil, on the subject of some remarkable organic remains which the latter had discovered in the calcareous rocks of that country. This translation was obligingly furnished by Mr. Strain to the Academy, and was published in the Proceedings soon after it was received. The information contained in Dr. Lund's paper, of his discovery of human remains, in a state, to all appearance, fossilized, is of great interest, and if verified by further developements of a similar character, may tend to throw much light on a subject now attracting great attention: the ancient history and physiology of the human race.

The next communication is by Dr. Morton, being a description of the cranium of a supposed new species of Hippopotamus, to which he has given the name *H. minor*. The skull had been sent to Dr. Morton by Dr. Goheen of Liberia, Africa, who himself believed it to belong to a species at present unknown to naturalists, although the animal is by no means uncommon in the river St. Pauls, from the banks of which he had obtained the specimens which Dr. Morton possesses.

A large portion of the succeeding number is occupied by papers describing new species of N. American Coleoptera, from Dr. Melsheimer, and the Rev. Mr. Zeigler, of Pennsylvania; and from Mr. John L. Le Conte, of New York. Dr. M.'s paper, which is long, and includes a large number of species, has been drawn up with great care, and evinces a closeness of observation, and a minuteness of investigation, which are rarely exceeded by those devoted to the study of Entomology. The communications of the two other gentlemen named, are not equal in length, but they are likewise entitled to great credit.

In the third number will be found a paper, by Dr. Hallowell, describing new African reptiles. This paper, and another published in the fifth number, will serve to maintain the reputation which the author enjoys, of being a cautious and accurate describer, especially of objects in this department of Natural History.

Dr. Morton has communicated another paper in the fourth number, describing

a very interesting fossil, the nearly perfect head of a crocodile, already alluded to, from the Cretaceous strata of New Jersey. To this relic Dr. Morton has given the specific name of *Clavirostris*, and closes his paper with a list of all the organic remains hitherto discovered in the same strata.

In the fifth number there is a letter to Professor Espy from several of his friends in this State, in which some facts are stated tending to corroborate his theory that rain may be artificially produced in time of drought. This number also contains a description of some new organic remains from the Eocene of South Carolina by Dr. Ravenel, of Charleston; a portion of another voluminous paper on N. A. Coleoptera, by Dr. Melsheimer; the paper by Dr. Hallowell already referred to; an analysis of sulphur springs in the State of New York by Professor Reid, of the N. Y. College of Pharmacy; and some interesting observations by Dr. Morton, on a new series of Ancient Egyptian Crania which he had recently received, the characters of which he has been gratified to find fully bear him out in his results previously obtained from the larger collection which form the materials of his Crania Egyptiaca.

In addition to the different written communications which have been thus hastily noticed, there are a number of others in a verbal form which have been offered before the Society during the year; chiefly from Prof. Johnson and Dr. Morton. The former has given some further results of his extensive researches and experiments upon the habitudes and properties of coals of this and other countries, and has greatly added to our knowledge of their comparative value for the purposes of fuel and the arts.

Between the 1st of December, 1843, and the 1st of the present month, the Society has elected eight new members, and eleven correspondents. Ten of the latter are residents in the United States, and one is foreign.

And here the present Report might be closed. But it would appear to be doing injustice to the memory of two of our late fellow members—Dr. Marmaduke Burrough, and Nathan Dunn—were I to omit the opportunity here afforded me of devoting a few words to a notice of each.

The former, as is well known to all present, passed abroad the greater part of the active period of his life, and during his extensive travels, never failed to acquaint himself with the natural productions of the various countries which he visited. His collections were made less for himself, than for the purpose of affording gratification to his numerous friends, and of enriching the cabinets of those Institutions with which he was connected. But none received so abundant a share of these treasures as the Academy. There is scarcely a department of the museum which will not amply attest this fact. The name of Dr. Burrough is associated with many recollections of benefits conferred on this Institution, and his loss will ever be deplored by her as that of one of her warmest supporters, and most disinterested and active friends.

From the executors of the late Nathan Dunn we have learned, with mingled feelings of pleasure and regret, that his will contains a bequest to this Institution of $10,000, but that in consequence of circumstances which need

not be referred to here, there is but little probability that the intentions of the testator can be complied with.

The possession of this sum would not only render the Academy independent, but it would be also enabled thereby to carry out several favorite projects which have been long contemplated. Whether this bequest be realised or not, however, the Academy is equally bound to record its gratitude for this unexpected instance of noble liberality towards it, and also for the unequivocal evidence which it affords of the testator's approval of the objects for which this Institution was founded.

All which is respectfully submitted by

WM. S. ZANTZINGER,
Recording Secretary.

Hall of the Academy, Dec. 31, 1844.

The Society then proceeded to an election for Officers for 1845. The following were announced duly chosen as such:

PRESIDENT.

William Hembel.

VICE PRESIDENTS.

J. Price Wetherill,
Samuel George Morton, M. D.

CORRESPONDING SECRETARY.

Walter R. Johnson.

RECORDING SECRETARY.

William S. Zantzinger, M. D.

LIBRARIAN.

A. Langdon Elwyn, M. D.

TREASURER.

George W. Carpenter.

CURATORS.

Samuel Ashmead,
William S. Vaux,
John Cassin,
Gavin Watson, M. D.

AUDITORS.

Robert Pearsall,
Robert Bridges, M. D.
William S. Vaux.

COMMITTEE OF PUBLICATION

A. L. Elwyn, M. D.
T. A. Conrad,
John Simmons,
Wm. S. Vaux,
A. E. Jessup.

Alfred T. King, M. D., of Greensburg, Westmoreland county, Pennsylvania, was then elected a Correspondent of the Academy.

PROCEEDINGS

OF THE

ACADEMY OF NATURAL SCIENCES

OF PHILADELPHIA.

VOL. II. JAN. AND FEB., 1845. No. 7.

Stated Meeting, January 7, 1845.

VICE PRESIDENT MORTON in the Chair.

Mr. Haldeman presented a communication from Dr. Melsheimer, containing additional descriptions of N. American Coleoptera, which was referred to the committee on his former papers.

A communication was read from the Librarian of Congress, returning acknowledgements for a copy of the Catalogue of the Library of the Academy.

A communication from the Corresponding Secretary of the Georgia Historical Society, dated Savannah, Dec. 16, 1844. acknowledging the receipt from the Academy, of a copy of Harlan's Medical and Physical Researches.

Stated Meeting, January 14, 1845.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

Two specimens, (male and female,) with a number of the eggs, of Coluber melanoleuca ? from S. Carolina. From Dr. William Blanding.

Mounted specimen of Mephitis Americana, Desm. From Mr. Wm. S. Wood, of Philadelphia.

DONATIONS TO LIBRARY.

Report of the Secretary of the Navy, communicating the report of a board of examiners to make experimental trials of plans and inventions for preventing explosions of steam boilers. From Prof. Johnson.

A report to the Navy Department of the U. S., on American coals applicable to steam navigation and to other purposes. By Walter R. Johnson. pp. 607. Washington, 1844. From the Author.

A communication from the American Philosophical Society was read, dated Dec. 6. 1844, acknowledging the receipt of No. 5, Vol. 2, of the Proceedings.

Mr. Haldeman exhibited specimens of the male and female, and of the larva and pupa of Corydalus cornutus, and made some remarks upon its habits and structure. The larva is aquatic, but leaves the water and constructs a cavity beneath a stone, in which it changes. The prothorax is much larger in the larva than in the pupa and imago. The mandible and labrum are prominent at all stages; the antennæ very small in the larva, and situated at the external base of the mandibles. The male of the perfect insect is known by the large arcuate mandibles, and both sexes present the remarkable peculiarity of a vertical perforation through the head, at the anterior base of the antennæ.

Stated Meeting, January 21, 1845.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO LIBRARY.

Proceedings of the American Philosophical Society, Vol. 4, No. 31, July to Dec. 1844. From the Society.

Esquisse d'une histoire de la Philosophie Chinoise: par G. Pauthier. From the Author, through Mr. R. K. Haight,

The Chairman read a letter from Mr. Richard K. Haight, dated Paris, 6th November, 1844, acknowledging the receipt of his notice of election as a Correspondent, and in reference to Mr. Pauthier's work above mentioned.

Dr. Morton also read the following extracts from a letter addressed to him as President of the Academy, by Dr Richard Lepsius, the distinguished head of the Prussian scientific commission in Egypt, dated Island of Philæ, 15th Sept., 1844.

"It will interest you, perhaps, to read the summary of the communications made by me to Mr. John Pickering, of Boston, President of the American Oriental Society of that city. They give some of the results of our journey into Ethiopia, and especially in regard to the ancient population of Meroë, their language, their descendants, and their relation to Egypt,—showing that the Meröites were a people of a red complexion, and that they spoke the language of the Bisharíba [Bisharrees?] of the present day, *which is decidedly Caucasian*, and very rich in grammatical forms, and important on account of the place it occupies among the other Caucasian languages.

But another remarkable fact which presents itself to us in Ethiopia, may perhaps have a more immediate bearing on the object of your Society. In the province of Butir-el-Hagar, at a long day's journey above Wady-Halfa, and near the cataract of Semneh, the Nile is contracted between high rocks which approach each other within a distance of three hundred and eighty feet; and on these yet remain the foundations of two very ancient fortresses, erected by the conqueror of the country, Sesourtasen III., (Osortasen,) the fifth king of the *twelfth dynasty*, and not of the XVIIth dynasty, as hitherto supposed.

Upon the enormous blocks constituting these structures, as as upon the rocks themselves, I have found a series of eighteen hieroglyphical inscriptions, of which thirteen belong to the reign of the immediate successor of Osortasen, viz., Amenenha III., the Mœris of the Greeks, the same who built the pyramids and excavated the lake of the Fayoum, as recently discovered by M. Linant. The other five descriptions belong to the last king of the XIIth Dynasty, Amenenha IV., and to the first two

kings of the XIIIth Dynasty. All these incriptions, which embrace a period of nearly fifty years, have no other object than to mark the height to which the river rose in the several years of which they bear the date. Independently of the novelty of these inscriptions, which are very short, they possess a great value in enabling us to compare the ancient elevations of the waters of the Nile with those of our own time; for the oldest of these records dates back to a period of twenty-two hundred years before the Christian era. Thus, the measurements I have made with the greatest care, and which at this place were taken with comparative facility, on account of the vertical position of the impending rocks, have given the remarkable result that the average rise of the Nile four thousand years ago, was seven metres, thirty cent. (or about twenty four English feet) higher than it is at the present day.

It will be readily conceived that this great difference in the level of the river, must have had an important influence upon the soil above the cataracts; and it directly explains a fact that had previously surprised me, viz: that in all the valley of Nubia, the level of the soil upon both shores, although it consists entirely of alluvium deposited by the Nile, is much more elevated than the highest level of the river in the best year of modern inundation; for the whole country has now to be irrigated by hydraulic machines called *Sakie*.

The cataract of Semneh could never have influenced the height of the river between Wody-Halfa and Assouan; but we may suppose that the cataract of Assouan was in ancient times much more closed than at present; because we observe the same elevation of the soil in this part of the valley; [between the first and second cataracts.] The mean elevation of the soil above the mean height of the river, is here (Philæ) somewhere from three to four metres, (from 10½ to 16½ feet.) But this same country still presents the traces of a much more ancient state, beyond the record of history, when the granite mountains which separated Ethiopia from Egypt obstructed the passage of the river, and formed real lakes in some localities; as for instance, in the gullies or gulfs between the rocks in the Arabian chain, wherein we observe hillocks of Nile earth which rise ordinarily even to ten and eleven metres (thirty-four to thirty-seven feet) above the level the highest modern inundation.

In reference to the preceding facts, it may perhaps be interesting to the members of your Society to examine some specimens of the different layers of the earth of the Nile, and I have accordingly sent, in a tin case, the following examples :

1. Earth of the Nile, taken from the summit of hillocks at thirty feet above the present level of the river, upon its eastern bank, half an hour (about a mile) above Korosco, [nearly sixty miles above Assouan.]

2. Some of the present soil of the valley of Korosco, taken at a height of three feet above the Nile.

3. Specimen of the earth newly deposited at Korosco, the 18th of August, 1844.

4. A little sand taken from the thermal spring at Okmé, on the southern frontier of the Province of Butir-el-Hagar, which is the only spring of the kind, to my knowledge, in all the valley of the Nile. It is on the western bank of the river, and issues from the earth at a temperature of 44 deg. Reaum." (130 Fahr.)

The following extract from another letter from Dr. Lepsius, of the same date, addressed to Mr. Gliddon, was also read by the Chairman.

"We shall leave this (the Island of Philæ) in a few days, and hope to arrive at Thebes in a month. We shall remain there during the winter, and shall return during the spring through Syria, Asia Minor, Constantinople and Greece, to our fatherland, where we shall arrive in the course of the next summer."

Meeting for business, January 28, 1845.

VICE PRESIDENT WETHERILL in the Chair.

After the Monthly Report of the Corresponding Secretary had been read, and some other business transacted, the Society proceeded to elect the different Standing Committees for 1845. The tellers reported the following result :

COMMITTEES FOR 1845.

Geological and Mineralogical.

J. Price Wetherill, Joseph A. Clay,
T. A. Conrad, Walter R. Johnson,
William S. Vaux, William M. Rice,
Samuel Ashmead.

Zoological.

S. G. Morton, M. D., John S. Phillips,
S. S. Haldeman, Edward Harris,
John Cassin, Wm. S. Vaux,
Wm. S. Zantzinger, M. D.

Botanical.

Peter A. Browne, R. Bridges, M. D.,
Gavin Watson, M. D., Wm. S. Zantzinger, M. D.,
Robert Kilvington.

Physics.

Isaiah Lukens, Walter R. Johnson,
Paul B. Goddard, M. D., John S. Phillips,
A. L. Elwyn, M. D.

Library.

R. Bridges, M. D., W. S. Zantzinger, M. D.,
Joseph Carson, M. D., Robert Pearsall,
S. S. Haldeman.

Committee on Proceedings.

S. G. Morton, M. D.,
John S. Phillips,
A. L. Elwyn, M. D.,
} *Corresponding and Recording Secretaries, ex-officio.*

Thomas C. Percival, Esq., of Philadelphia, was elected a Member of the Academy.

Stated Meeting, February 4, 1845.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

The following specimens of Ammonites from the Oxford clay, near Chippenham, Worcestershire, England, were presented by Dr. Thomas B. Wilson, viz: A. Elizabethæ, (3 specimens;) A. Comptoni, A. Gulielmi, A. Kœnigi, and A. Leachii.

Specimen of Anthracite coal, containing a large seam of mineralized charcoal, from Mauch Chunk, Pennsylvania. From Mr. Erskine Hazard.

Specimens of the alluvial sediment of the Nile, obtained from three separate localities, as indicated in the letter from Prof Lepsius, read at the meeting of the 21st Jan. last. From Prof. Lepsius.

Also sand from the thermal spring at Okmé, on the frontier of the province of Butir-el-Hagar. From the same.

DONATIONS TO LIBRARY.

Variarum Naturæ; or, the Naturalist's Miscellany. By George Shaw, M. D. F. R. S.; the figures by F. P. Nodder. 18 vols. 8vo. London, 1790. From J. P. Wetherill, Esq.

Indian Antiquities, or dissertations relative to the geography, form of government, commerce, literature, &c. of Hindostan. By Thomas Maurice. 7 vols. 8vo. London. From the same.

Histoire physique, polititique, et naturelle de l'Ile de Cuba: par M. Ramon de la Sagra. Livs. 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, and 51. Presented by J. Price Wetherill, S. G. Morton, A. L. Elwyn, J. S. Phillips, Wm. S. Vaux. and Dr. Geo. C. Leib.

The American Journal of Science and Arts, Vol. 48, No. 1. Jan. 1845. From the Editors.

The following publications, in pamphlet form, from the Author, M. Edm. de Selys Lonchamps, of Leige, viz:

Note sur une nouvelle Mésange d'Europe.

Note sur deux espéces de Musaraignes observées nouvellement en Belgique :

Note sur le Mus agrestis de Linné :

Nouvelles additions aux Libellulidèes de la Belgique de 1840 a 1843.

Notices sur les Libellulidées extraites des Bulletins de l'Academie Royale de Bruxelles.

Extrait de la Revue Zoologique par la Societé Cuvierienne, (Aug., 1841 and Nov., 1842.)

The Taconic System, based on observations in New York, Massachusetts, Maine, Vermont and Rhode Island. By Ebenezer Emmons, M. D. 4to. Albany, 1844. From the Author.

The American Quarterly Journal of Agriculture and Science, conducted by Dr. E. Emmons and A. J. Prime. Vol. 1, No 1. Albany, 1845. From the Editors.

Transactions of the Linnean Society of London. Vol. 19, part iii. London, 1844.

Proceedings of the same from June 20, 1843, to June 18, 1844: and List of Members of the Society for 1844. From the Society.

Twenty-fourth Annual Report of the Leeds Philosophical and Literary Society, 1843 and 1844. From the Society.

An Introductory Lecture on the means of promoting the intellectual improvement of the students and Physicians of the Valley of the Mississippi, delivered in the Medical Institute of Louisville. By Daniel Drake, M. D. Louisville, 1844. From the Author.

A letter was read from M. de Longchamps, dated Leige, May, 1844, accompanying the above donation of his publications, and in reference to them; and also requesting exchanges of species of the insect family Libellulidæ, and of Mammalia.

A letter was read from Dr. Alfred T. King, dated Greensburg, Westmoreland Co., Pa., Jan., 1845, acknowledging the receipt of his notice of election as a Correspondent.

Dr. Morton offered the following, which was adopted:

Resolved, That the Librarian, and each member of the Library Committee be furnished with a stamp containing the corporate title, &c., of the Society, impressions of which to be placed on the title page of each book in the Library.

Also resolved, That the subject be referred to the Library Committee with power to act.

Stated Meeting, February 11th, 1845.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

Seventeen specimens of minerals, chiefly from the vicinity of Clermont, France. Presented by Mr. Joseph Clark, of St. Louis, Mo.

Specimens of Copper Ores, and of Native Copper, from Erie, Erie county, Pa., and a remarkable fossil, seemingly nondescript, from the same locality. From Dr. Wm. Johns, late of Erie, through Dr. Geo. W. Norris.

DONATIONS TO LIBRARY.

Discourse before the Society of the Sons of New England of the City and County of Philadelphia, on the history of the early settlement of their country; being their first anniversary. Delivered Dec. 21, 1844, by their President, Samuel Breck. From the author.

A complete series of Plans of the Potomac aqueduct: with an 8vo. vol. explanatory of the same. From Dr. Francis G. Murphy, of Alexandria, D. C., through Dr. Colin Arrott of Philadelphia.

Professor Johnson read some remarks additional to his paper on the methods of determining the calorific powers of com-

bustible bodies, and submitted, in a tabular form, a synopsis of the results previously detailed, accompanied with such general statements as the researches thus far prosecuted appeared to warrant. He stated that he was still engaged in pursuing these inquiries, and hoped at a future period to be able to lay before the Academy the fruits of a more extended investigation.

The communication was referred to the following committee: Prof. Rogers, Mr. Lukens, and Dr. Bridges.

Prof. Johnson exhibited a specimen of lamellated wrought iron, between two piles of which was a complete partition of earthy matter, apparently a portion of cinder of the manufacture which had been expanded between the rollers. Remarks were made on the importance of this subject in connection with the explosion of steam-boilers.

A document from the executors of the late Nathan Dunn, containing a proposition to the Legatees to continue the exhibition of the Chinese Museum in London beyond the period specified in the will, was presented and read; and on motion of Mr. Phillips, it was

Resolved, That a Member of the Academy be appointed to meet the representatives of the other Legatees, to confer with them, with power to take order.

On motion of Prof. Johnson, the Vice President, Dr. Morton, was appointed to this duty.

Dr. Zantzinger offered the following, which was adopted:

Resolved, That the several specimens of the sediment of the Nile, recently received from Dr. Lepsius, be referred for analysis to Prof. Johnson.

Stated Meeting, February 18th, 1845.

Vice President Wetherill in the Chair.

A paper by Mr. Cassin, intended for publication, entitled "Descriptions of two Raptorial Birds, presumed to be new, in the collection of the Academy of Natural Sciences," was read and referred to the following Committee—Mr. S. F. Baird, Mr. Phillips, and Dr. T. McEuen.

Dr. Morton offered the following resolution, which he stated was the result of a communication with Prof. Rogers in reference to the subject in question:

Resolved, That a Committee of three members be appointed to confer with Prof. Rogers in relation to the Collection of Rocks, Minerals and Fossils, made by him during his recent Geological Survey of the State of Pennsylvania, and to report on the possibility of having said collection deposited in the Museum of the Academy.

The resolution was adopted, and the committee appointed to consist of Dr. Morton, Mr. Wetherill, and Mr. Ashmead.

Meeting for Business, February 25th, 1845.

Vice President Morton in the Chair.

The Librarian exhibited the several stamps, which the Library Committee had been authorized to procure by a late resolution of the Society. The design having been approved, the Librarian and the members of the Library Committee were directed each to be provided with a stamp, and to place the impressions as soon as practicable on all the books now in the possession of the Society, or which may be hereafter received.

The Committee to whom was referred a communication by Prof. Johnson, read at the meeting of the 11th inst., reported in favor of publication.

Prof. Johnson first enumerates some of the methods which have been hitherto employed by Chemists and others, to ascertain the relative heating powers of fuel.

1. *The heating of water*, without converting it into vapour, is practised first by Rumford, and more recently by other experimenters, particularly by Despretz and Dulong. The French chemists assume as the *united calorific power*, 1 gram of water heated 1° centigrade, (1. °8 Fahr.) The number of such units produced by burning 1 gram of combustible is termed its *calorific efficiency*.

2. *The melting of ice*, as in the calorimeter of Lavoisier and Laplace, also employed by Hassenfratz. The heat of fluidity, (135° Fahr.) is here the measure of effect.

3. *The heating of air*, or maintaining a certain distance between an interior room in which combustion is conducted, and an exterior one, kept cool by the open air. The *length of time* such difference is maintained by a given weight of each fuel, is the measure of its efficiency. This is the method of Mr. Marcus Bull.

4. *Combustion in contact with metallic oxides*,—measuring the heating power by the weight of metal, reduced on the supposition that the latter is proportionate to the weight of oxygen withdrawn. This is illustrated by M. Berthier's process by litharge.

5. *The reduction of the nitrate or chlorate of potash to the state of a carbonate*, by fusing these salts, and then graduallya dding the combustible, till complete saturation has taken place.

6. *The practice of the Cornish engineers*, of measuring the efficiency of fuel by the weight of water, which a given bulk of it (as 1 bushel) will raise one foot high, when burned under a boiler driving a pumping engine.

7. *The distillation of the coals to ascertain the weight of fixed carbon which they contain*, suggested by the experiments of Mr. Pfyfe, of Edinburgh; the weight of that constituent being supposed to measure the head or power.

8. *Ultimate analysis*; which assumes that the quantity of heat developed by an organic combustible, depends on the heating power of the carbon which it contains, added to that of its excess of hydrogen, above what is required to combine with its oxygen in forming water. This method has been applied by Messrs. Peterson and Schoedler to wood, and by Richardson, Regnault and others, to coals.

9. *The direct or practical trial by evaporation*, as practised by Messrs. Parkes, Wicksteed, Pfyfe, Schanfhautl and Manby in Great Britain, by Messrs. S. L. Dana, A. A. Hayes, J. A. Francis, and more recently by Prof. J. himself, in this country. (The results of the trial last referred to are contained in the Report to the Navy Department on American coals recently published by Congress.)

10. *The melting of iron* either in a reverberatory or a cupola furnace, the weight of metal fused by one part of combustible being the standard of comparison.

11. *The performance of smith's work of a uniform character*, such as the manufacturing of chains by means of the several varieties of fuel. The number of links of chain formed by a given weight of each coal, is here the measure of useful effect.

The object of the present communication is mainly to exhibit the relation between the results obtained by the *eighth*, and those by the *ninth* method of trial above mentioned.

The existence, in bituminous coals, of variable proportions of nearly pure charcoal, is referred to as furnishing evidence of a want of homogeneousness in this class of bodies. A diversity of results may consequently be expected when ultimate analysis is resorted to for the purpose of establishing a theory of transmutations, or of demonstrating what changes have occurred in bringing vegetable substances into the state of bituminous coal. Those who assume *woody fibre* as the sole basis from which it has been derived, do not pretend to prove that the other proximate constituents of vegetables, the resinous matter, for example, and the oily component of seeds, have been wholly removed. Hence analyses of coal applied to this purpose may not always lead to unobjectionable inferences. But as means of determining the calorific power of combustible bodies, they may, especially when performed on average samples, or multiple specimens, afford information both interesting to science and valuable to the arts.

The relation between the calorific power *calculated* from analysis, and the practical heating power decided by evaporating water, is determined for six different varieties of bituminous coals, varying considerably in their composition.

Drawings of the apparatus employed for both these purposes were exhibited, and their action explained. That used in evaporation is so constructed as to determine the proportion of heat expended on the products of combustion, as well as that employed to generate steam.

In applying calculations to the ultimate analyses of coals as well as to the products of combustion, the atomic weight of carbon is assumed to be six, of oxygen eight, and of nitrogen fourteen times that of hydrogen, in accordance with the recent determinations of Dumas. In calculating evaporative powers, the latent heat of steam is taken at 1030° Fahr., according to Prof. J.'s own investigations of that subject.

In ascertaining the relative efficiencies and values of combustible bodies, with a view to economical applications, it is necessary to take them either as found in nature, or as supplied in commerce, including, of course, whatever impurities they may chance to contain. But in order to deduce general relations between bodies differently constituted, in regard particularly to their combustible constituents, the comparison must be made after deducting the waste, or incombustible matter found in the crude state of the fuel. This principle is applied both to the ultimate analysis and to the evaporative experiments; and hence in the following table both *the calculated evaporative power of the carbon constituent*, (column 15,) and the *total evaporative efficiency by experiment* (column 18,) are referred to, and calculated for, one part by weight of *combustible matter*.

The relation between the *fixed* and the *volatile* combustible matters of

coals, is liable to considerable variation, according to the rate of distillation to which they are subjected. The more slowly this process is conducted, the higher (within certain limits) will be the proportion of fixed carbon.* The estimation of heating powers, therefore, from the quantity of fixed carbon which coals contain, if not wholly erroneous in principle, must be liable to considerable uncertainty in practice.

Many highly bituminous coals contain more than 5 per cent. of materials convertible into ammoniacal liquor by simple distillation without contact of air. This is proved on the largest scale in the manufacture of illuminating gas. That proportion, therefore, is not only unavailable for heating purposes, but it also abstracts from the really combustible materials of the fuel, all the heat, sensible and latent, which the vaporized ammoniacal products receive during combustion.

The proper *water of combustion*, namely, that derived from the *hydrogen in excess*, and oxygen of the atmosphere, must in every instance where heat is applied to evaporate water above the boiling point, as in all ordinary steam boilers, be likewise incapable of giving up its latent, as well as much of its sensible heat.

The average specific gravity of the six varieties of bituminous coals assayed is 1.31,—that of water at 60° being unity. Admitting the hydrogen in its solid state to have a density of only 1.25, it must in passing into the state, first of gaseous hydrogen, and then into that of watery vapour, (still having the same bulk as the hydrogen,) undergo an enlargement to 2117 times its original bulk. This volume is farther increased according to the usual law of gaseous expansion, by whatever heat above boiling point is left in the vapour, when it passes away from the surface to be heated. In a well constructed evaporative apparatus producing steam of 6 pounds pressure, in which the circuit traversed by the gases after passing the grate, and before reaching the chimney, was 121 feet, the temperature was generally about 100° above the boiling point; and the watery vapour, being of course surcharged with heat, possessed 2431 times the bulk which it had in the solid state and at 60 degrees of temperature.

By the experiments of Dulong, (Comptes Rendus, tom. 7,†) one gram of pure carbon developes, in burning, heat enough to raise the temperature of 7170 grams of water, 1° centigrade, or 12906 grams 1° Fahrenheit. This latter number is, therefore, used as a co-efficient, by which to multiply the numbers in the 12th column of the following table to obtain those of the 15th. By the same authority, 1 gram of *gaseous* hydrogen gives heat sufficient to raise 62,535 grams of water 1° Fah.

The average *excess of hydrogen* for the six varieties of coal tried by evaporation, as deduced from columns 13 and 14 of the table, is 4.636 per cent. which, calculated after the manner of the European chemists, ought to possess an evaporative power of 2.814. This would raise the average of the 15th column from 10.700 to 13.514, as the calculated evaporative power of the unit of combustible matter, showing the calculated to be 26.3 per cent. higher than the experimental effect.

* See Proceedings of the Acad. of Nat. Sciences, Vol. 2, pages 9—10.
† See also Peclet, Traité de la Chaleur, Tom. 1. p. 50.

Table exhibiting the analyses of several varieties of Bituminous Coal, both into their proximate and their ultimate constituents, with the calculated and the experimental determination of their evaporative powers.

Designation of the coals.	Specific gravity.	Proximate Analysis. Composition of the raw coal in 100 parts. Moisture expelled below 250° F.	Sulphur.	Volatile combustible matter	Fixed Carbon.	Earthy matter.	Ratio of fixed to 1 of volatile combustible matter.	Ultimate analysis. Grains of Dried coal assayed.	Carbonic acid collected.	Water collected.	By calculation, the *combustible matter* in 100 parts is found to be constituted of Carbon.	Hydrogen.	Oxygen and Nitrogen.	Calculated evaporative power of the carbon alone in one of combustible matter, by Dulong's co-efficient, from water at 212°.	Practical evaporative power. Pounds of water from 212° to one of combustible matter. Evaporated from the boiler.	Vaporizable by the heat expended on the gaseous products of combustion.	Total of evaporative efficiency of one part of combustible matter, by experiment on a practical scale.	Difference between the calculated and the experimental efficiency of the combustible matter.	Remarks.
Summit Portage rail road, Cambria Co. Pennsylvania.	1.3617	0.700	1.500	18.195	64.245	15.360	3.535	7.26	20.62	3.23	91.955	5.867	2.178	11.522	10.278	1.312	11.550	—.028	Ultimate analysis effected by burning in contact with scale oxide of copper.
Midlothian, "new shaft," Virginia.	1.3006	0.914	2.282	29.274	62.050	5.480	1.966	4.57	14.82	2.23	93.620	5.739	0.641	11.731	10.191	1.269	11.460	+.271	Analysis by scale oxide as above.
New Castle, England.	1.2567	1.461		28.312	68.377	1.850	2.415	6.46	19.56	3.21	84.157	5.626	10.218	10.545	9 178	1.720	10.898	—.353	Analysis by same material as above. The heat expended on gases is calculated from the mean result of several other coals of similar constitution.
Clover Hill, Virginia.	1.2887	1.277	0.514	28.409	65.425	4.375	2.268	6.05	17.68	2.58	83.393	4.958	11.649	10.445	8.588	1.949	10.537	—.082	
Scotch.	1.2759	1.365		35.586	60.342	2 707	1.696	7.64	22.60	3.75	82.952	5.607	11.441	10.393	8.868	1.338	10.206	+.187	It appears that, on an average, these coals expended in evaporating water from the boiler 85 35, and on the products of their combustion 14.65 per cent. of their whole heating power. Both the *sum* and the *number* of differences between the practical and the calculated evaporative powers, affected by the positive sign, are seen in the last column to be the same as those affected by the negative sign.
Caseyville, Kentucky, and Cannelton, Indiana.	1.3920	1.150		30.669	44.493	23 687	1.450	4.21	8.96	1.92	76.385	6.663	17.002	9.565	7.734	1.823	9 557	+.008	
Averages.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	10.700	9.133	1.5685	10.701		
Osage River, Missouri.	1.2000	1 670	0.489	41.348	51.160	5.340	1.237	6.94	19.95	3.69	81.855	6.168	11.977	10.286					No evaporative trials of Osage coal, or of bitumen, have been made.
Pure bitumen.	1.1558	.000		72.438	24.799	2.761	0.342	8.16	22.60	5.75	77.679	8.023	14.298	9.464					

The data furnished by the preceding table afford the means of ascertaining the proportion of its carbon volatilized in the distillation of the *combustible matter* in each kind of coal.

The calculations prove that of its whole carbon-constituent, the per centage volatized was as follows:

Cambria county coal, ...	16 767
Midlothian, new shaft, ...	29.195
New Castle, ...	15.967
Clover Hill, ...	16.847
Scotch Cannel, ...	24.169
Caseyville, Ky., Cannel, ...	22.452
And that the average was	20.883

The *identity* of results obtained in the averages of the 15th and 16th columns would seem to demonstrate that the heating power of bituminous coals is proportionable to the *carbon* which they severally contain.

The Monthly Report of the Corresponding Secretary was read and adopted.

John L. Le Conte, M. D., of New York, and M. Clot Bey, M. D., Surgeon in Chief to the Viceroy of Egypt, were elected Correspondents of the Academy.

PROCEEDINGS

OF THE

ACADEMY OF NATURAL SCIENCES

OF PHILADELPHIA.

VOL. II. MARCH AND APRIL, 1845. No. 8.

Stated Meeting, March 4, 1845.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO LIBRARY.

The following valuable works were presented by Mr. William Hembel.

The Silurian system, founded on geological researches in the counties of Salop, Hereford, Radnor, &c, with descriptions of the coal fields and overlying formations. By Roderick Impey Murchison, F. R. S. In two parts. 4to. pp. 768. London, 1839.

Etudes sur les Glaciers: par L. Agassiz. 8vo. Neuchatel, 1840: with a folio atlas of plates.

A general system of the vegetable kingdom, &c. By Sir Charles Linné. Translated from Gmelin, Fabricius, &c., by William Turton, M. D. 2 vols., 8vo. pp. 1851. London, 1806.

Les Commentaires de M. P. André Matthiole, medicin Sienois, sur les six livres de la matiere medicinale de Pedacius Dioscoride: traduits de Latin en François, par Antoine du Pinet. Folio. Lyons, 1680.

General Zoology, or systematic natural history. By George Shaw, M. D., F. R. S. Vol. 3d, Amphibia, pp. 615. London, 1802: and Vol. IX. Aves, pp. 547. London, 1815.

A general outline of the animal kingdom, and manual of comparative anatomy. By Thomas Rymer Jones. 8vo. pp. 732. London, 1841.

Figures and descriptions of the Palœozoic fossils of Cornwall, Devon, West Somerset, &c. By John Phillips, F.R.S. 8vo. London, 1841.

A communication from the American Philosophical Society was read, acknowledging the reception of the last No. of Proceedings.

A letter was read from Mr. J. Tremper, dated Dresden, N. Y., Feb. 14, 1845, announcing that he had made a collection of fossils from the immediate vicinity of the Seneca Lake, intended for the cabinet of the Society, and which would be forwarded by the earliest opportunity. The letter also contained some meteorological observations which had been taken by the writer at the same locality during the past winter.

Prof. Johnson offered the following resolution, which was unanimously adopted:

Resolved, That the thanks of the Society be presented to Mr. William Hembel, for the valuable donation of scientific works this evening received from him.

Stated Meeting, March 11, 1845.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

Mounted specimen of Ardea purpurea, and a specimen of Madrepora palmata, of unusual size. From Mr. Cassin.

A collection of plants made during a trip up the Mississippi and St. Peters, and over the Lakes in 1838. From Mrs. Rachel Blanding.

Specimen of a true concretionary Oolite rock; from the south of Florida. From Prof. H. D. Rogers.

A communication from Mr. Haldeman was read, dated Chiquesalunga, March 3d, 1845, suggesting to the Society an exchange of publications with the "Swiss General Association of Naturalists."

A paper by Dr. Hallowell, entitled "Description of Reptiles from South America, supposed to be new;" and a second paper, entitled "Descriptions of new species of African Reptiles," were read and referred to the following committee, viz.: Dr. Blanding, Rev. Mr. McFarland, and Dr. Holbrook.

Professor Johnson made some remarks on a recent occurrence of the adhesion and apparently perfect cementation of two steel bars in the cold state, while revolving in contact with each other. The one, the upright shaft, bearing a heavy mill stone, and the other a cylinder of the same diameter, also standing vertical, and on the head of which the shaft was supported. Both bars were of the same diameter, (rather more than an inch) and their ends were planes running in contact. The mill being suddenly arrested and the two bars found strongly united, efforts to separate them proved ineffectual, and the attempt led to a fracture out of the original juncture.

This occurrence was stated to be in accordance with observations already familiar to those who have studied the phenomena of cohesion, and particularly the habitudes of steel and iron, when subjected to mechanical motions tending to modify the condition of their ultimate molecules.

The simple pressing together at ordinary temperatures of two clean and plain surfaces of lead causes them to cohere with much tenacity. Two or more portions of the same metal at an elevated temperature, issuing under pressure from a reservoir of semi-fluid metal, may unite under simple pressure to form a continuous tube, so perfect, that it will part at any other section as soon as at the line of juncture. Two disks, of glass, perfectly clean, and placed in contact without the intervention of air or of organic

matter, cohere to an extent far beyond what the mere external pressure of the air would be adequate to produce.

Besides the tendency of similar materials to cohere when brought into close contiguity, the two bars had the farther advantage of developing in each other a very high degree of magnetism. This, their vertical position alone, without motion, being so near the direction of the magnetic dip, would certainly in time produce; and with the revolving motion, which (as every machinist knows from the operations of boring and drilling) produces a high magnetic state, it would occur with much greater promptitude and intensity.

It was represented that the juncture had not apparently been heated, at least not discolored. This latter fact is perfectly consistent, however, with such a degree of temperature as would allow much mobility of particles, and greatly aid the high pressure of more than a ton weight per square inch, and a strong magnetic attraction to bring the revolving surfaces into the sphere of actual cohesion. The grease box with which the two bars are stated to have been surrounded would defend the surfaces from oxidation, the cause of discoloring, and would interpose no effectual preventive against the contact of two plain surfaces, revolving in the circumstances now supposed.

Professor Johnson referred to his own experiments, made many years ago, in which it was found that bars of iron broken at a temperature of 5 or 600 degrees, and in the magnetic meridian, became strongly and permanently magnetic. He referred to the Proceedings of the Academy (vol. 1, page 144,) for an account of the phenomena then observed.

It is a subject of regret that the proprietors of the mill in question had not preserved the united bars, to be submitted to competent persons for a minute examination of their condition and properties.

Prof. Henry D. Rogers stated that the specimen of Oolite rock presented by him this evening, had been obtained from Dr. Binney of Boston. It had been found in Florida, in a somewhat extensive deposit, by a correspondent of that gentleman. Though identical in color and structure with the

Bath Oolite of England, its organic remains would seem to refer it to the latest tertiary period.

On motion of Dr. Bridges: Resolved, That the Committee of publication be authorised to transmit to the "Swiss General Association of Naturalists," an entire set of the Journal of the Academy, and a copy of the Proceedings as far as published.

Stated Meeting March 18th, 1845.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO LIBRARY.

Observations on the Botany of Illinois, more especially in reference to the autumnal flora of the Prairies. By C. W. Short. (From the Western Journal of Medicine and Surgery. Vol. 3, No. 3, new series.) From the Author.

Discourse on the 200th anniversary of the birth of William Penn. Delivered in Independence Hall, Oct. 24th, 1844, before the Historical Society of Pennsylvania, by Job R. Tyson. From the Author.

Journal of Prison Discipline and Philanthropy, Vol. 1, No. 1. Jan., 1845. From the Philadelphia Society for alleviating the miseries of prisons.

A letter was read from the Rev. Daniel Zeigler, dated York, Pa., March 10, 1845, acknowledging the receipt of his notice of election as a Correspondent.

On motion of Prof. Johnson: Resolved, That a copy of the Proceedings of the Academy, as far as published, be presented to the Historical Society of Pennsylvania.

Meeting for Business, March 25th, 1845.

VICE PRESIDENT MORTON in the Chair.

The Committee to whom was referred the following paper by Mr. Cassin, read Feb. 18th last, reported in favor of publication.

Description of a new Vulture in the Museum of the Academy of Natural Sciences of Philadelphia.

By JOHN CASSIN.

Genus CATHARTES, Illiger.

C. Burrovianus. ♂ C. capite nudo, lævi, naribus magnis, ovatis, corpore omnino nigro, viridi-cœrulescente subnitido, subtus pallidiore; plumis extendentibus sursum super posteriore cervicis, parvo spatio in pectore nudo. Alis longis, remigibus et rectricibus nigris, scapis primarum albis et conspicuis, tertia prima longissima. Hæc species est minima vulturum Americanorum cognitorum.

Long. tot. (exuvii) 22 unc., rostri 2½, alæ 18, caudæ 8½.

Hab.—Prope Vera Cruz.

Head naked, smooth, with the nostrils large and oval; plumage of the body entirely black, with a greenish blue gloss, paler beneath; the feathers extend upwards on the back of the neck, a small bare space on the breast. Wings long, the quills and tail feathers black, with the shafts of the primaries white and conspicuous, third primary longest. The smallest American Vulture known.

Total length (of skin) 22 inches, bill 2½, wing 18, tail 8½.

Hab.—Near Vera Cruz.

This species resembles C. *aura*, Linn., in the shape of the bill and nostrils, and in having the tail rounded, but differs from it not only in size, but the feathers extend upwards on the back of the neck and lie flat instead of forming a ruff; the plumage of the specimen now described is black, none of the feathers having pale margins, as is commonly the case in specimens of C. *aura*; the shafts of the primaries are clear white, and the head is more entirely destitute of downy feathers. The tarsi are longer and more slender.

The head of C. *Burrovianus* is quite smooth, in which, as in other respects, it is very different from C. *atratus*, Wilson.

This new species was obtained in the vicinity of Vera Cruz, by the late M. Burrough, M. D., in honor of whom I have named it, as a slight acknowledgement for his very valuable services to Natural History and to this Academy.

Descriptions of new species of Coleoptera of the United States.

By F. E. MELSHEIMER, M. D.

(Continued from page 160.)

4. E. *fuscatus*. Fuscous; antennæ dull ochreous; feet dull castaneous.—4½ l. long, 1½ l. wide. Pennsylvania.

Elater badius-tristis, 985. Melsh. Catal.

Dark brown, yellowish hirsute: head altogether as in the preceding: antennæ hardly as long or longer than the thorax, weakly serrate, dull ochraceous, with the second joint shorter than the third, which is more slender and shorter than the fourth: thorax wider than long, wider in the middle than the base of the elytra, narrower at apex than at base; deeply and densely punctulate, with the sides rounded from base to apex; posterior angles straight, subacute, slightly carinate; dorsal line indistinct before and in the middle, somewhat obvious at base: scutel and elytra entirely as in the preceding: beneath dull dark reddish brown, slightly yellowish sericeous; margin of terminal ventral segment rufous; feet pale reddish-brown; tarsi and posterior femoral plates as in the preceding species.

5. E. *testaceipes*. Black; feet rufous, or testaceous.—4 l. long, 1 l. wide. Pennsylvania.

Black, shortly hirsute: head deeply and densely punctulate, with the clypeus as is common, short, margined and obtusely rounded at apex; antennæ not as long as the thorax, moderately serrate, with the second and third joints smallest; dull brownish, the three basal joints dusky rufous: thorax moderately convex, scarcely longer than wide, widest at base, with the sides from base to apex slightly rounded; finely and densely punctured, somewhat intricately on the lateral margins; posterior angles straight, subacute, obliquely carinate: scutel sparsely and minutely punctured: elytra punctate-striate, with the punctures much longer than broad, the interstices flattish, transversely wrinkled: beneath black, finely yellowish pubescent: feet rufo-testaceous; tarsi and posterior femoral plates as in the preceding.

6. E. *ursulus*. Black, hirsute; feet dark reddish-brown.—4½ l. long, 1½ l. wide. Pennsylvania.

Form of the preceding. Deep black, densely but shortly blackish hirsute: head deeply and densely punctured, with the front moderately convex; clypeus as in the preceding species; antennæ as long as the thorax, decidedly serrated from the fourth joint; black, with three basal joints dark rufo-piceous, second and third joints small, obconic, subequal: thorax formed and sculptured as in the preceding, with the dorsal groove apparent behind: elytra as in the preceding, and also gradually narrowed at the sides from the base to the tip: feet dull chestnut-red; tarsi and posterior femoral plates as in the foregoing species, and in all which the clypeus is anteriorly declined.

CRYPTOHYPNUS, Esch.

1. C. *obliquatulus*. Blackish; thorax castaneous; feet and an oblique band on the elytra, testaceous.—1¼ l. long, ½ l. wide. Pennsylvania.

Ovate, glabrous, shining, closely and very minutely punctured: head black, with the clypeus at tip margined and obtusely rounded; antennæ slender, with the third joint smaller than the second, which is as long as the fourth, but less robust: thorax convex, widest in the middle, narrower at base than the base of the elytra, with the sides obtusely rounded; posterior angles short, acute, carinate, slightly excurved: elytra slightly widest behind the middle; sides arcuated from the base to the apex; more obsoletely punctulate than the thorax; each elytrum with an oblique pale testaceous fascia on the middle, not reaching the suture: feet and pectus pale testaceous: abdomen sometimes pale brown.—Strictly not belonging to this genus.

2. C. *guttatulus*. Black, opake; elytra sparsely maculate with rufous.—1¼ l. long. Pennsylvania.

Oblong-ovate, deep black, opake, slightly pubescent: head minutely and densely wrinkled, with the tip of the clypeus obtusely rounded and finely margined: antennæ as in the preceding, not surpassing the base of the thorax, slender, dusky, with the second joint rather longer than the third: thorax, form as in the preceding, but less convex, and with the sides less dilated; minutely and densely longitudinally wrinkled, with a capillary smooth dorsal line, often obsolete; posterior angles as in the preceding, rather more excurved, with the carinæ more prominent, longer and parallel to the lateral edge: elytra striate, striæ obsoletely punctulate, the interstices convex, not wider than the striæ; sides slightly arcuated from base to apex; each elytrum with a humeral spot, and an orbicular one behind the middle, testaceous: feet testaceous; posterior femoral plates as in the preceding species, abruptly dilated within. The spots on the elytra vary in size and number; sometimes the humeral spot is very large and connected with a smaller discoidal one; sometimes it is single and orbicular. Specimens occur which are also maculate at the apex of the elytra. It is quite an abundant species.

OPHORUS, Eschsch.

O. *crassicollis*. Dark fuscous; antennæ and feet, dull rufous.—3 l. long, 1 l. wide. Pennsylvania.

Elater crassicollis, M. Catal.

Dark brown or blackish: head densely punctulate, with the clypeus short, wide, at tip immarginate, obtusely rounded, almost truncate, slightly declined; antennæ dusky rufous, subfiliform, some longer than the thorax, with the second joint one-third shorter than the third; fourth and remaining joints slightly and obtusely serrated: thorax moderately convex, hardly longer than wide, slightly wider at base than at apex, deeply and densely punctulate, and like the head, sparsely and finely pubescent: medial line slightly apparent only towards the base; sides obtusely rounded; posterior angles straight, subacute, obsoletely dull rufo-piceous, finely carinate, carinæ parallel to the lateral edge: elytra punctate-striate, the interstices subconvex, confluently and finely corrugated:

feet dull pale rufous, short, with the tarsi simple; posterior femoral plates abruptly dilated and rounded within.

CORYMBITES, Latr.

1. C. *atropurpureus*. Black-purple, glossy; feet, epipleuræ, lateral edges and tip of the venter, rufous.—5 l. long, 1¼ l. wide. Pennsylvania.

Black-purple, shining, slightly metallic: head profoundly and not densely punctured, with the front triangularly flattened; clypeus at tip immarginate, slightly declined; labrum dusky rufous: antennæ not as long as the thorax, scarcely serrate, blackish, with two basal joints rufous; second joint small obconic, third slightly shorter and less robust than the fourth, eleventh joint with a minute accessorial one: thorax convex, not longer than wide, wider at base than at apex, with the sides rounded from base to apex; punctured like the head, and like it sparsely pubescent; medial line entire, somewhat obsolete before the middle; posterior angles acute, feebly excurved, and like the anterior edge, obsoletely rufous or piceous: scutel ample, clothed with ashy hairs: elytra hardly widest in the middle, finely punctate-striate, the interstices flat, broad, much and finely punctured; lateral edge obsoletely rufous: beneath black-brown: feet, epipleuræ, lateral abdominal margins and tip, rufous.

2. C. *hirticollis*. Black-fuscous, densely pubescent; clypeus strongly impressed in the middle at tip; feet rufous.—6 l. long, 2 l. wide. Pennsylvania.

Black-fuscous, densely clothed with an ochreous pubescence: head coarsely punctured, with the clypeus immarginate, slightly declined before, strongly impressed in the middle at apex; eyes black, shining; antennæ not much longer than the thorax, fuscous, serrate from the fourth joint, second joint some shorter than the third, which is hardly as long as the fourth, and not as broad, terminal joint subulate: thorax nearly as wide as long, convex, with the sides feebly rounded; closely and deeply punctured; dorsal groove only obvious behind; pile placed in whirls; posterior angles straight, subacute, finely carinate; scutel punctured pilose: elytra punctate-striate, the interstices flat, minutely punctured; densely pilose at base; sides rectilinear from base to behind the middle, thence to the apex gradually arcuated; tip acutely rounded; lateral edges and epipleuræ, dusky rufous: feet and lateral margins of terminal ventral segment, rufous; tarsi simple, with the joints gradually decreasing in length; posterior femoral plates lanceolate.

3. C. *interstitialis*. Black; interstices of the elytra broad, flat, punctulate; clypeus emarginate; feet and antennæ rufous.—7½ l. long, 2½ l. wide: Pennsylvania.

Black, with a dark purple reflection, ochreous pubescent: head flattish, densely ochreous pubescent, with the clypeus as in the preceding species; antennæ longer than the thorax, subserrate from the fourth joint; rufous; joints as in the preceding species: thorax not much longer than wide, slightly contracted at base, with the sides almost rectilinear; densely and deeply punctured; dorsal groove only apparent towards the base; posterior angles not excurved, acute, strongly carinate, with the carinæ slightly oblique: scutel finely

and closely punctured: elytra somewhat long, finely punctate-striate, punctures longer than wide; interstices broad, flat, each with about three irregular rows of minute and distant punctures: beneath black, with a dense ashy pubescence: feet, epipleuræ and lateral abdominal margins, rufous: tarsi and posterior femoral plates as in the preceding species. Sometimes the lateral elytral edges, and the posterior ventral segments and tip, are rufous or piceous.

DIACANTHUS, Latr.

D.? *signaticollis*. Black; lateral margins of the thorax broadly rufous.—4 l. long, 1¼ l. wide. Pennsylvania.

Black: head rugosely punctured, with the front and clypeus triangularly impressed, the latter short, margined and obtusely rounded at tip; labrum large, dull testaceous: antennæ longer than the thorax, strongly serrate, dark fuscous, with the second joint small, obconic, third as long as the fourth, but slightly less wide, terminal shortly subulate: thorax a little longer than wide, not much wider behind than before, with the sides rounded; deeply and distantly punctulate, black, with lateral margins broadly rufous or piceous, with the dorsum black, except a narrow basal space; hind angles subacute, excurved, finely and obliquely carinate, rufous, with the tip black; glossy: scutel dusky, punctulate: elytra deeply punctate-striate, with the interstices convex, distantly punctulate and transversely corrugated: pleuræ rufous: feet chestnut-brown, with the tarsi lighter and simple, the joints gradually decreasing in length: posterior femoral plates lanceolate.

PRISTILOPHUS, Latr.

P.? *sordidus*. Blackish, densely clothed with an ashy-brown pubescence; elytra obscurely striate.—15 l. long, 4 l. wide. Alabama.

Dark brown or blackish, densely ashy-brown-pubescent: head with numerous large punctures; front and clypeus impressed, the latter short, declined, and at apex margined and obtusely rounded; mouth rufous; palpi piceous: antennæ hardly longer than the thorax, serrate, brown, ashy pubescent, with the second joint half the length of the third, obconic, third joint in every respect less than the fourth, terminal joint distinctly subulate: thorax hardly longer than wide, wider behind than before, moderately convex, densely, deeply and equally punctulate; medial line not apparent; sides rectilinear from the posterior angles to beyond the middle, thence to the apex strongly rounded; hind angles rather acute, somewhat excurved, strongly and obliquely carinate: elytra very obscurely striate, the interstices more or less confluent, finely and distantly punctured, and finely and obsoletely transverse-rugose; sides gradually tapering from the base to the apex: beneath black; feet paler; tarsi simple, gradually decreasing in length; hind femoral plates lanceolate and rather somewhat suddenly dilated within. This species is not rare, and has perhaps been already described. It may, perhaps, be referred to the genus *Aphanobius*.

2. P. *femoralis*. Black, femoræ discolored; antennæ dull testaceous.—10 l. long, 3 l. wide. Pennsylvania.

Black, shining; head deeply and rather distantly punctulate; front and cly-

peus impressed, the latter at apex truncate; labrum piceous: antennæ dull testaceous, or castaneous, three first joints piceous; mouth dusky rufous; palpi piceous; thorax much punctured, punctures small, faintly impressed; dorsal line distinct behind the middle; outlines altogether as in that of *lævigatus*, Fabr.: scutel densely and minutely punctured, densely ashy-pubescent: elytra obviously punctate-striate, striæ and punctures fine, the interstices very finely corrugated; outlines as in *lævigatus*: feet black or dark brown, with the anterior side of the fore and middle thighs rufous. Resembles much the male of *Elater lævigatus*, Fabr., but it is more distinctly punctured on the head and less on the thorax, and has the elytral striæ more obvious than that well known species.

AGRIOTES, Eschsch.

1. A. *truncatus*. Thorax fuscous; elytra dull testaceous; feet pale rufous.—3½ l. long, 1¼ l. wide. Pennsylvania.

Elater truncatus, Melsh. Catal.

Head fuscous, slightly convex, much punctulate, clothed with prostrate yellowish hairs, with a short obtuse linear impression on the front: antennæ rufous, short, filiform, with the first joint long, robust, subclavate, second some longer than the third: thorax very convex, fuscous, a little wider than long, wider behind than before, with the sides obtusely rounded; punctured like the head, finely and sparsely pubescent; dorsal line apparent only behind the middle; hind angles acute, scarcely excurved: elytra ochreous, slightly widest in the middle, finely punctate-striate, striæ more obvious towards the base and lateral margins than near the suture and apex, the interstices convex, transversely corrugated; yellowish pubescent: feet pale rufous: beneath dusky; tarsi simple; posterior femoral plates lanceolate.

2. A. *striatulus*. Dull reddish-brown, beneath blackish.—4¼ l. long, 1¼ l. wide. Pennsylvania.

Elater striatulus, Melsh. Catal.

Oblong, dull reddish brown, yellowish pubescent: head moderately convex, confluently, rugosely punctulate: antennæ short, filiform, yellowish-rufous, with the second joint some longer than the third, which is the length of the fourth, terminal joint obscurely subulate; thorax convex, as wide as long, very slightly wider at base than at apex, with the sides rounded; color of the head, with the margins colored like the elytra; shagreened or punctured like the head; dorsal groove apparent only behind the middle; hind angles subacute, excurved, color of the elytra, which is paler than the thorax, slightly widest behind the middle, punctate-striate, interstices finely transversely wrinkled: beneath blackish, densely and distinctly punctulate: feet color of the antennæ; tarsi simple; posterior femoral plates lanceolate. Bears some resemblance to the preceding species, but the thorax is less convex than in that species.

3. A. *pubescens*. Dark fuscous, pubescent; antennæ and feet rufous.—4¼ l. long, 1¼ l. wide. Pennsylvania.

Dark brown, ashy-pubescent: head slightly convex, densely punctured, punctures rather large; clypeus truncate at apex; antennæ as long as the thorax,

filiform, rufous, with the second joint longer than the third, which is as long as the fourth but hardly as broad, terminal joint subulate; thorax convex, longer than wide, wider at base than at apex, where it is not much wider than the head, with the sides rectilinear from the hind angles to much before the middle, thence to the apex suddenly rounded; deeply, densely and rather equally punctulate; anterior edge piceous; hind angles subacute, slightly excurved, carinate, carinæ parallel to the outer edge: scutel densely punctulate, ashy-pubescent: elytra punctate-striate, striæ fine, punctures longer than wide, approximate, interstices flat, obsoletely and very minutely punctured, and finely transversely corrugated; sides gradually narrowed from behind the middle to the apex, which is acutely rounded: feet and lateral ventral margins, rufous; tarsi simple; posterior femoral plates almost equal in breadth. This species is strictly not referable to this subgenus, and is closely allied to *Elater erythropus*, Say, and Melsh. Catal.

DOLOPIUS, Eschsch.

1. D. *isabellinus*. Brownish-yellow; thorax cylindric; antennæ fuscous 4¼ l. long; 1¼ l. wide. Pennsylvania and Virginia.

Elongate, subcylindric, dull honey-yellow, finely pubescent; *head* slightly convex, strongly punctured, with a short, longitudinal, linear impression on the front; *clypeus* truncate and slightly margined at tip; *antennæ* short, filiform, hardly serrate, brownish, with the second joint longer than the third; fourth joint rather wider than the fifth; *eyes* and *mouth* black; *thorax* oblong, cylindric, very slightly narrowed before the posterior angles, which are subacute, slightly excurved and finely carinate; anterior margin contracted; surface densely and profoundly punctulate; dorsal line obvious only behind the middle: *scutel* very finely and densely punctured; *elytra* subcylindric, deeper shaded than the thorax, and like it pubescent or very shortly hirsute; punctate-striate, striæ fine, punctures oblong, obscure, interstices flattish, numerously punctulate and transversely wrinkled: *feet* and *beneath* colored as above; *tarsi* simple; posterior basal plates sublanceolate.

2. D. *oblongicollis*. Reddish-brown; thorax oblong; antennæ and feet rufous, 4-4¼ l. long; 1 l. wide. Pennsylvania.

Elater oblongicollis, Melsh. Catal.
" sericeus, " "

Head dusky, slightly convex, densely punctulate; *clypeus* margined and truncate at apex: *antennæ* longer than the thorax, rufous, pilose, hairs equal, not applicate; second and third joints small, obconic, second longer than the third, fourth longer and wider than the fifth: *thorax* dull reddish-brown, longer than wide, cylindric, convex, greatest convexity, as in the preceding species, before the middle; densely or confertly punctulate, yellowish sericeous; anterior margin slightly contracted, obsoletely rufous; posterior angles excurved, acute, slightly carinate: *elytra* chestnut-red, finely and shortly hirsute, punctate-striate, striæ fine, punctures oblong, interstices minutely and distantly punctured and transversely corrugated,

flat: *beneath* blackish, or dark reddish-brown: *feet* pale rufous; *tarsi* simple; *posterior femoral* plates abruptly dilated within.

ADRASTUS, Meg.

A. *testaceus*. Rufo-testaceous, hirsute; clypeus at apex angulated. 1½ l. long, ½ l. wide.

Elater testaceus, Melsh. Catal.

Rufo-testaceous, yellowish hirsute; *head* moderately convex, finely punctured, with a longitudinal indentation on the middle of the front; *clypeus* acutely angulated at apex; *mouth* deflexed; *antennæ* filiform, with the second and third joints subequal, testaceous, longer than the thorax; *thorax* wider at base than long, with the sides subrectilinear; convex, densely and almost invisibly punctured, glossy; posterior angles slightly excurved, acute: *elytra* punctate-striate, the interstices convex and finely transversely wrinkled: *beneath* reddish-brown, glossy: *feet* pale testaceous; *tarsi* third and fourth joints lobed; *claws* pectinate.

CAMPYLUS, Fisch.

1. C. *flavinasus*. Black; clypeus, limb of the thorax, and lateral edges of the elytra, yellowish. 6 l. long; 1½ l. wide. Pennsylvania.

Cantharis bilineata, Melsh. Catal.

Black; *head* confluently rugosely punctured, impressed with the clypeus anteriorly broadly yellowish and impunctured, and obtusely rounded at apex; *eyes* very large, semiglobular, cinereous; *antennæ* more than half the length of the body, serrate from the third joint, black, with the second joint very small, obconic; *palpi* varied with pale and black; *thorax* quadrate, inequal, confluently and coarsely punctured; medial groove entire; lateral margins undulated, broadly yellowish and depressed, anterior margin similarly coloured, but less broadly; posterior margin scarcely coloured; hind angles short, acute, strongly excurved; *scutel* piceous; sparsely punctulate: *elytra* punctate-striate, the interstices confluently transversely wrinkled; lateral edges yellowish to near the apex, and a similarly colored line, originating on the humerus, and descending obliquely and obsoletely to the middle; sides rectilinear and parallel to near the apex: *feet* and *beneath* blackish or fuscous, with the epipleura, lateral margins of the *venter*, sides of the *antepectus* and base of the *femora* and *tibiæ*, pale.

2. C.? *bivittatus*. Dark fuscous, hirsute; elytra alternately barred with brown and testaceous; thorax elongate. 4. l. long; ½ l. wide. Virginia.

Sublinear, fuscous, strongly hirsute, scabrous or rugose; *head* small exserted, with the *clypeus* short, depressed, at apex slightly elevated, longitudinally rugose and punctate; *eyes* large, semiglobular, pale brown: *antennæ* long, slender, fuscous, with the joints subcylindric, basal joint clavate, second very small, obconic, third nearly as long as the fourth, terminal joint longest, cylindric: *thorax* elongate, subcylindric, narrower before than at base, with the sides rectilinear from the posterior angles to the apex;

medial line almost entire, obscurely defined; posterior angles strong, acute, slightly excurved, testaceous: *scutel* oblong, distantly punctulate: *elytra* punctate-striate, punctures transverse, interstices flat, transversely wrinkled; lateral and sutural margins and a discoidal vitta dull testaceous; sides rectilinear and parallel from the base to almost the apex; *feet* dull testaceous; *tarsi* slender, with the second joint nearly as long as the first; posterior femoral plates sublanceolate.

RHIPICERIDÆ, Latr.

SANDALUS, Knoch.

1. S. *rubidus*. Head and thorax brown or blackish; *elytra* fusco-rufous. 9 l. long; 3¼ l. wide. Pennsylvania.

Densely rugose; *head* and *thorax* black, minutely and confluently wrinkled and punctured, densely clothed with yellowish pile, the latter with an obtuse indentation on the middle of the anterior margin and the obsolete one in front of the scutel; between the two indentations is a faint medial line; lamellæ of the *antennæ* dusky rufous; *elytra* dusky rufous, finely and densely wrinkled: the three ordinary raised lines not strongly defined; *beneath* and *feet* black; postpectus densely clothed with yellowish hairs. This species bears a very strong resemblance to S. *niger*, Kn., but it differs from that species in being always more robust, and in having the elytra differently colored, and always differently and more obsoletely sculptured. The elytra are scarcely punctured in *rubidus*, but in *niger* they are obviously and profoundly punctured. But as only male specimens of *rubidus* have yet been found, it may still prove to be only a male variety of *niger*. Is not *rubidus* perhaps *Rhipicera rufipennis* of Dejean's Catalogue?

2. S. *brevicollis*. Black, punctured; thorax short and round at the sides. 6 l. long; 2¼ l. wide. Pennsylvania.

Robust, oblong, black; *head* opaque, densely and finely rugose-punctured, with the frontal lateral edges more than usually elevated above the insertion of the antennæ: *thorax* more than twice shorter than long, wider at base than at apex, widest behind the middle, with the sides rounded; densely and minutely punctured and wrinkled, densely clothed with an ashy pubescence; a large triangular indentation on the middle of the anterior margin, and a similar but less profoundly indented one in front of the scutel; medial groove distinct between the two indentations: *elytra* opaque, with the ordinary lines distinct, spaces with irregular series of large, profound and approximate punctures; vesture indistinct; *beneath* and *feet* black, finely and densely punctured, and clothed as above; *tarsi* piceous. Resembles in the thorax S. *petrophya*, Kn., but in the general colour and outlines and sculpture of the elytra it differs essentially from the same.

Cebrionidæ, Latr.

ATOPA, Fabr.

1. A. *ornata*. Black; thorax rosaceous, with two large black spots, each

elytrum with two or three ashy vittæ. 3—4½ l. long; 1—1½ l. wide. Pennsylvania.

Black, densely clothed with a fine, short pile: *head* finely and densely shagreened; *clypeus* truncate at apex; *labrum* narrow, transverse; *palpi* filiform, terminal joint acute at tip; *antennæ* inserted before the eyes, nearly half the length of the body, fuscous, pubescent, sometimes the two first joints dull testaceous, joints compressed, basal joint clavate, second small, subglobose, third and fourth almost equal, the former very slightly longer than the latter: *thorax* convex, comparatively narrower before and wider behind than in *cervina*, Fabr., dull rosaceous, with a large suboval black spot each side of the middle; medial line obsolete, with a small impression in front of the *scutel*, which is suborbiculate or cordate, color of the thorax; *elytra* slightly convex, feebly contracted behind the shoulders; punctate-striate, interstices flat, confluently and minutely transversely corrugated: lateral edges, suture, and two or three longitudinal bands, ashy, they are somewhat obsolete except when viewed in a lateral oblique direction: *feet* and *beneath*, dull blackish, ashy sericeous; *tarsi* almost simple, basal joint subclavate, the three following ones slightly dilated, hardly cordate; *claws* very minutely ciliated or pectinated. In consequence of the second and third antennal joints of this coleoptera being almost equal, and the tarsal joints simple and not cordate, it cannot strictly be placed in the genus *Atopa*, but it certainly approaches, in other characters, nearer to it than to any other genus. This species feeds exclusively on the Alder.

2. A. *bicolor*. Black, beneath reddish-brown. 3 l. long; 1¼ l. wide. Pennsylvania.

Drilus bicolor, Melsh. MS.

Black above, or pitchy glossy; *head* shining, very minutely punctured; *eyes* black; *antennæ* rufo-testaceous, with the second joint small, subobconic, third and remaining joints subequal; *mouth* and *palpi* testaceous; *labrum* subquadrate, color of the antennæ: *thorax* convex before the middle, widest in the middle, narrowed before, as wide at base as the elytra, with the sides rounded from base to apex; shining, impunctured, basal and lateral margins finely wrinkled; basal edge bisinuate, with the hind angles acute; *scutel* triangular or subcordate: *elytra* finely and obscurely punctate-striate, interstices broad, subconvex, minutely punctured; sides slightly widest in the middle, thence to the apex obtusely arcuated: *beneath* pale reddish-brown; *feet* testaceous; *tarsi* ———

3. A. *fusca*. Castaneous, beneath and feet testaceous. 2¼ l. long; 1 l. wide. Pennsylvania.

Drilus fuscus, Melsh. MS.

Chestnut brown, slightly pubescent; *head* finely wrinkled, with distant minute punctures, with the front short, very obtusely rounded at apex; *clypeus* transverse, distinctly separated from the front; testaceous; *labrum* quadrate testaceous; *antennæ* as in the preceding species, testaceous: *thorax* short, convex before the middle, depressed towards the lateral and posterior margins; anterior edge somewhat waved, projecting in the middle over the vertex of the head; base much wider than the apex, with the sides rounded: basal edge

slightly bisinuate; punctured, disk finely and confertly, lateral margins rugosely; *scutel* cordate, with an oblong deep impression at base; *elytra* punctate-striate, with the striæ faintly impressed and the punctures transverse, interstices flattish, minutely and distantly punctured: *beneath* and *feet* reddish-testaceous; penultimate tarsal joint lobed beneath.

Cyphonidæ, Steph.

NYCTEUS, Latr.

N.? *thoracicus*. Reddish-brown; thorax and feet testaceous. 1½ l. long; ½ l. wide. Pennsylvania.

Lampyris thoracicus, Melsh. Catal.

Head rufo-piceous, minutely punctulate; *eyes* black; *labrum* and *mouth* testaceous; *antennæ* brownish, with three basal joints testaceous, third joint very small, as small again as the second, fourth joint as long as the fifth and sixth united, terminal joint; *thorax* semi-orbiculate, clypeate, slightly narrower at base than the elytra, feebly convex in the middle, with the margins depressed; pale testaceous, shining, impunctured, very finely reticulate; disk obsoletely brownish, faintly indented: *scutel* triangular, testaceous: *elytra* reddish-brown, finely and shortly hirsute, very finely punctured and reticulate: *beneath* reddish brown: *feet* testaceous; *tibiæ* finely setous, armed with two spines at tip; *tarsi* simple, fourth joint slightly lobate.

EUBRIA, Ziegl.

E.? *nervosa*. Dusky reddish-brown; thorax black; elytra with two angulated raised lines, tarsi pale ferruginous. 1¼ l. long; 1 l. wide. Pennsylvania.

Short subovate, dull dusky reddish-brown, obsoletely punctured and rugulose, ashy and very finely pubescent; *head* small, retracted; eyes deep black; *antennæ* more than half the length of the body, mostly black, opake, serrate from the third joint, second joint very small, subglobular and with the basal joint glabrous; *palpi* small; *labrum* deflexed: *thorax* short, more than three times wider than long, much wider at base than at apex, the latter moderately retuse, the former almost truncate; sides rounded; angles rather acute, with the anterior ones somewhat deflexed; lateral edges finely margined; surface black, sometimes dusky reddish-brown, depressed at each side of the middle at base; disk in front of the scutel gibbose: *scutellum* moderate, triangular, color of the elytra seldom black: *elytra* as wide at base as the base of the thorax, rather widest behind the middle, moderately convex, dull reddish-brown; humeral tubercles small, distinct; each elytrum with two longitudinal, slightly raised lines, paler than the general color, and connected together by two transverse oblique ones: *beneath* and *femora* dull brown: *tibiæ* dark reddish-brown, mutic at tip: *tarsi* short, slender, testaceous or pale rust color, with the joints feebly lobed. Sometimes the elytra are obscurely clouded with black. The female is larger than the male, or the above stated size, and has the antennæ less serrated.

SCYRTES, Illig.

S. *solstitialis*. Black; antennæ, palpi, tibiæ and tarsi, testaceous. 1¼ l. long; ¼ l. wide. Pennsylvania.

Black, very finely pubescent or hirsute: *head* and *thorax* very minutely and somewhat densely punctured, the former tinged with rufous, both glossy: *elytra* very finely and densely wrinkled: *beneath* and *femora* dull reddish-brown, the posterior of the latter more than ordinarily incrassated: *antennæ, palpi, tibiæ,* and *tarsi*, testaceous.

(*To be continued.*)

An amendment to the 8th Art. of Chap. VII of the By-Laws was adopted, so as to make the article read thus:

"But no works shall be loaned from the Hall of the Academy, except those marked with an asterisk in the catalogue, unless by an affirmative ballot vote of three-fourths of the members present, when the application is made; the name of the borrower and the title of the book to be recorded on the minutes, and security given for its safe return by note or otherwise, for the full value thereof, according to the estimate of the Librarian or Library Committee."

Stated Meeting, April 1, 1845.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

A numerous collection of fossils and geological specimens from the secondary strata of the Upper Missouri, especially from the vicinity of the Great Bend. Presented by Mr. Edward Harris.

A collection of Reptiles from South America, including the following, presumed to be new, and described by Dr. Hallowell in a paper read at the meeting of 11th March last—viz:

Coluber Spixii: C. fuscus: C. vittatus: C. fuliginosus: C. Ashmeadii: C. variegatus: C. atratus: C Blandingii: C. Pickeringii: Trigonocephalus Colombiensis: and Leiolepis Auduboni. Presented by Mr. Samuel Ashmead.

A collection of fossils from the blue limestone of Montgomery Co., Ohio. From Mr. Julius S. Taylor, of Carrollton, Ohio, through G. W. Carpenter, Esq.

A separated human cranium. From Mrs. Mary A. Hamilton, of Philadelphia.

A letter was read from Mr. Charles A. LeSueur, dated Havre, 20th Feb., 1845, announcing that he had forwarded for the Academy a collection of geological specimens from Cape La Héve, near Havre; with a chart representing a section of the same locality.

An extract of a letter from Mr. Julius S. Taylor, addressed to Mr. Carpenter, was read, referring to his donation above mentioned, and tendering his services to the Society, or to the members individually, in procuring additional geological specimens from his vicinity, if so desired.

A communication was presented and read from Mr. Edward Harris, containing the results of his observations on the geological characters and face of the country traversed by Mr. Audubon and himself, during their late expedition to the Yellow Stone river and Rocky Mountains. The paper was designed as a reply to certain interrogatories relative to the geology of that district of country, addressed to Messrs. Audubon and Harris by a committee, consisting of Prof. Rogers, Dr. Morton and Prof. Johnson, appointed by the Academy for that purpose, in March, 1843.

The communication was referred to the above named committee.

Stated Meeting, April 8th, 1845.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

An extensive series of fossils and other geological specimens from Cape La Héve, near Havre. From Mr. Charles A. LeSueur.

A fragment of the rock composing the second Pyramid of Ghizeh. From G. R. Gliddon, Esq.

DONATIONS TO LIBRARY.

Final Report on the Geology and Mineralogy of the State of New Hampshire. By Charles T. Jackson, M. D. 4to. Concord, N. H., 1844. From the Author.

The Literary Record and Journal of the Linnæan Association of Pennsylvania College. Nos. 1 to 6 inclusive, Vol. 1. From the Association.

Reports on the Washington silver mine in Davidson Co., N. C. By Richard C. Taylor. Philadelphia, 1845. From the Author.

Two sheets of figures of the fossil zoophytes of Western Ohio. From Mr. J. W. Van Cleve, of Dayton, Ohio.

Message from the President of the United States, transmitting a treaty between the U. S. and the Ta Tsing Empire. From Prof. Johnson.

Report of the Commissioner of Patents, showing the operations of the Patent Office during the year 1844. From the same.

Report to the Navy Department of the United States, on American coals applicable to steam navigation and to other purposes. By Walter R. Johnson. From the Author.

The following works in pamphlet form were presented by the author, M. Pagani :

Note sur la théorie Algébraique des logarithms.

Quelques considérations mathématiques sur les vents alizés.

Note sur une nouvelle manière de parvenir aux équations fondamentales de l'hydrodynamique.

Note sur quelques transformations Algébraiques.

Note sur quelques transformations des équations relatives au movement d'un point matériel.

Note sur la maniére de parvenir aux équations fondamentales de l'hydrodynamique.

Mémoire sur l'equilibre des colonnes.

Mémoire sur quelques transformations génerales de l'équation fondamentale de la mécanique. (2 exemplaires.) (Extrait du tome XII des memoires de l'Academie royale de Bruxelles.)

Mémoire sur l'équilibre d'un corps solide suspendu a un cordon flexible. (Extrait du tome X des memoires de l'Academie royale de science et de Belles lettres de Bruxelles.)

Note sur l'équation $A^B=C$. (Extrait du tome XI des memoires de l'Academie royale de Bruxelles.)

Note sur l'équilibre d'un systeme dont une partie est supposée inflexible et dont l'autre partie est flexible et extensible.

A note was read from the Baron van der Staaten Ponthoz, Secretary of the Belgian Legation at Washington, dated 25th March, 1845, transmitting the works of M. Pagini, above mentioned.

A letter was read from Mr. John L. Le Conte, dated New York, March 24th, 1845, acknowledging the receipt of his notice of election as Correspondent.

A letter from the Asiatic Society of Bengal, dated 1st Oct., 1844, announcing the presentation to the Academy by that Society of 28 volumes of Oriental works, printed wholly, or in part, under its auspices; and enclosing a list of the same.

A communication from the Rev. Daniel Ziegler, dated York, Pa., March 13, 1845, transmitting a paper intended for publication, entitled "Descriptions of new North American Coleoptera;" which latter was on motion referred to the following committee: Dr. B. H. Coates, Dr. McMurtrie and Mr. Markland.

Stated Meeting, April 15, 1845.

Vice-President Morton in the Chair.

DONATIONS TO MUSEUM.

The following bird skins were presented by Mr. John Cassin.

Procnias hirundinaceus, Sw.	Loxia torrida, L.
Pitylus Cayenensis, Bris.	Loxia minuta, L.
Drimophyla atra, Sw.	Aglaia chrysoptera, Sw.

From South America.

Halcyon Senegalensis, L. From Western Africa.

Trichus Philadelphia, Wilson. From vicinity of Philadelphia.

A collection of fossils from the vicinity of Seneca Lake, N. Y., comprising numerous specimens of the following genera, viz:

Delthyris, Dipleura, Cypricarditis, Nuculites, Orthonota, Strombodes, Orthoceras, Strophomene, Calymene, Orthis, Cyathophyllum, Atrypa, Favosites, and others. Collected and presented by Mr. J. Tremper, of New York.

DONATIONS TO LIBRARY.

Annales des mines: 4$^{me.}$ Serie. Livs. II, III, et IV de 1844. In exchange.

Prof. Rogers called the attention of the Society to a paper by M. Durocher, in the Annales des Mines, Tome 6, IV Liv. de 1844, on the geology of the Pyrenees, containing facts confirmatory of his and his brother's views with regard to the structure of mountainous chains.

Stated Meeting, April 22, 1845.

MR. LUKENS in the Chair.

DONATIONS TO LIBRARY.

Chart, illustrating a section of Cape la Héve, near Havre. From Mr. C. A. LeSueur.

American Journal of Science and Arts. Vol. 48. No. 2. April, 1845. From the Editors.

Annales de la Societé Entomologique de France. Tome 3, Liv. 2; Tome 4, Liv. 2; and Tome 7, Livs. 2 and 3. (Purchased to complete the series in the Library of the Society.)

Catalogue des Coléopteres de la Collection de M. Le Conte Dejean. Purchased by order.

The following Oriental works, comprising 28 vols., were received from the Asiatic Society of Bengal:

Futawa Alemgiri; a collection of opinions and precepts of Mohammedan law. Compiled by Sheik Nizam and other learned men, by command of the Emperor Aurungzeb Alemgir. 6 vols., 4to. Hooghly, 1842.

Dictionarium Anamitico-Latinum, primitus inceptum ab illustrissimo et reverendissimo, P. I. Pigneaux, Episcopo Adranensi, Vicario Apostolico Cocincinæ et dein absolutem et editum a J. L. Taberd, Episcopo Isauropolitano, &c. 4to. Serampore, 1838.

Inayah, a commentary on the Hidayah; a work on Mohammedan law, compiled by Mohammed Akmuloodleen, Ibn Mahmood, Ibn Ahmudonil Hunufee. Edited by Moonshee Ramdhun Sen, with the aid of others. 3 vols., 4to. Calcutta, 1831.

Khazánat ul Ilm, or the Treasury of Science; being a course of Instruction in the various branches of Mathematics. By Dewan Kánh Ji, of Patna, a Hindu of the Mathar Kaith caste. 4to. Calcutta, 1837.

The Haribansa; an Epic poem, written by the celebrated Veda Vyása Rishi. Edited and carefully collated with the best manuscripts in the Library of the Sanscrita College

of Calcutta, by Nimáichandra Siromani, Pandit of the College, Rámagovinda, Pandit to the Asiatic Society, and Rámaharı Nyáya Panchánan, and published by the Asiatic Society of Bengal. 4to. Calcutta, 1839.

The Sharaya Ool Islam ; a treatise "on Lawful and Forbidden things;" by Abool Kasim, of Hoolla. 4to. Calcutta, 1839.

The Anatomist's Vade Mecum. By Dr. Robert Hooper. Translated into Arabic by John Tytler. 4to. Calcutta, 1830.

The Mahábhárata, an Epic poem, written by the celebrated Veda Vyása Rishi. Edited by the learned Pandits attached to the establishment of the Education Committee. 4 vols., 4to. Calcutta, 1834.

A Grammar of the Tibetan language, in English. Prepared under the patronage of the Government, and the auspices of the Asiatic Society of Bengal, by Alexander Cosma de Korös, Siculo-Hungarian of Transylvania. 4to. Calcutta, 1834.

Essay towards a Dictionary, Tibetan and English. Prepared with the assistance of Bandé Sangs-Rygas Phun-tshogs, a learned Láma of Zangskár, by Alexander Cosma de Korös, Siculo-Hungarian of Transylvania. 4to. Calcutta, 1834.

The Iawáné úl ilm ul Riyázil ; or a translation from Hutton's course of Mathematics into Arabic, for the use of the Mohammedan Madrasas, under the control of the general committee of public instruction. By John Tytler, Esq. Part 1. 4to. Calcutta, 1835.

Four 4to. numbers of a Periodical in the Arabic language. (Title not given.)

The Naishadha-Charita; or adventures of Nala Rájá of Naishadha ; a Sanscrit poem, by Sri Harsha, of Cashmir. Part I. With the perpetual commentary of Prèma Chandra Pandita, Professor of Rhetoric in the Sanscrit College of Calcutta. 8vo. Calcutta, 1836.

The Sùsruta, or System of Medicine, taught by Dhanwantari, and composed by his disciple, Sùsruta. 2 vols. 8vo.

A communication from Mr. J. Tremper, of New York, was read, on the Geology of Seneca Lake, New York, and its vicinity, accompanied by several plans and sections of the same. Referred to a committee, consisting of Dr. Morton, Mr. Conrad and Prof. Rogers.

Meeting for Business, April 29, 1845.

MR. HALDEMAN in the Chair.

The Committee on Dr. Hallowell's papers, describing new species of South American and new African Reptilia, read March 11th, 1845, reported in favor of publication.*

The Report of the Corresponding Secretary was read and adopted.

J. C. Reinhardt, M. D., of Columbia, Pennsylvania, was elected a Correspondent, and

Adolphus L. Heermann, Esq., of this city, a Member of the Academy.

* These descriptions will appear in the next number of the Proceedings.

PROCEEDINGS

OF THE

ACADEMY OF NATURAL SCIENCES

OF PHILADELPHIA.

VOL. II. MAY AND JUNE, 1845. No. 9.

Stated Meeting, May 6, 1845.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

Three human crania, viz.: An ancient Mexican, a Lenapé, and a Congo negro. Deposited by Dr. Morton.

Specimen of Ammonites placenta, from Lowndes county, Alabama. From Dr. Wm. Blanding.

DONATIONS TO LIBRARY.

Third Bulletin of the Proceedings of the National Institute at Washington. Feb. 1842 to Feb. 1845. From the Institute.

Catalogue of Plants collected by the Botanical department of Providence Franklin Society, principally in Rhode Island, in 1844. From the Society.

Boston Journal of Natural History. Vol. V, No. 1. Jan., 1845. From the Boston Society of Natural History.

First Report on Meteorology to the Surgeon General of the U. S. Army. By James P. Espy. From Mr. Samuel Hazard.

The Literary Record and Journal of the Linnæan Association of Pennsylvania College. Vol. 1, No. 7. From the Association.

A History of British fossil Mammalia and Birds. By Richard Owen, F. R. S. Nos. 1 to 7. From Dr. Thomas B. Wilson.

Fifty-eighth Annual Report of the Regents of the University of the State of New York. Albany, 1845. From the Regents.

A letter was read from Dr. Edmund Ravenel, dated Charleston, S. C., April, 28, 1845, containing some interesting particulars respecting the geological position of certain strata of that State, and indicating some new localities which he had discovered for Eocene and Miocene fossils.

A communication was read from the Directors of the "Museum d'Histoire Naturelle" at Paris, dated 1st March, 1845, acknowledging the reception of certain Nos. of the Proceedings, and requesting the transmission of others which the Association had failed to receive.

Dr. Morton then proceeded to make some observations on the three human crania deposited by him this evening, but more particularly in reference to that of the Congo negro, which was presented to him by Dr. David Gilbert, of Gettysburg, in this State.

This skull pertained to an individual who could not have been more than twenty years old; and yet there is a total absence of the sagittal and coronal sutures, and the lamdoidal itself is not complete, while the temporal suture remains entirely open. Dr. Morton called the attention of the society to a communication made by him in 1841, on a skull in nearly all respects analogous to the present one, and the opinion then deduced from it, viz.: that the principal function of the sutures is to subserve the growth of bones, which they do by osseous deposition at their margins;

hence a suture in the cranium is equivalent to the epiphysis between the shaft and head of any one of the long bones.* In the present example, Dr. Morton showed that owing to the total absence of the sagittal suture, the lateral growth of the cranium has ceased at an early period of life; the presence of the lamdoidal suture has permitted of posterior elongation, and the squamous sutures being entirely open, the upward growth, corresponding to the lines of these sutures, is remarkably developed.

Dr. Morton expressed his acknowledgments to the Baron Von Gerolt, Prussian Minister at Washington, for the ancient Mexican cranium deposited this evening. It was exhumed from the cemetery of San Juan de Tlatilolco, near the city of Mexico, in which were buried great numbers of the Mexicans who were slain in defence of their city against the Spaniards, during the invasion of Cortez.

On motion of Prof. Johnson,—Resolved, That a copy of the 8th vol. of the Journal of the Academy, and a copy of vol. 1st of the Proceedings, and of vol. 2d, as far as published, be presented to the "Museum d'Histoire Naturelle."

Stated Meeting, May 20th, 1845.

VICE PRESIDENT MORTON in the Chair.

A letter was read from Dr. Edward Hallowell, communicating some facts observed by him respecting the young of the Opossum, a number of which, with the female, had been recently captured in his neighborhood. The letter also referred to the practice among the gallinaceous birds of devouring serpents, several interesting instances of which were mentioned.

Prof. Johnson read a portion of the report of his analysis of the specimens of Nile alluvium received from Prof. Lepsius

*Proceedings, Vol. I, August, 1841.

and referred to him by the Academy for that purpose. A part of the apparatus which he employed in conducting the analysis was exhibited, and the mode of operating with it fully explained.

A letter was read from Mr. Benjamin Silliman, Jr., Secretary of the Association of American Geologists and Naturalists, recently convened at New Haven, Conn., dated Yale College Cabinet, May 6th, 1845, transmitting a copy in manuscript of a Report made by a Committee of the Association, appointed for the purpose "of taking into consideration the adoption of the rules of the British Association regarding the subject of Zoological and Botanical Nomenclature, with such changes as may be deemed expedient."

The design of the Association in transmitting a copy of this Report, being to ascertain the views of the Academy on the subject referred to, in connexion with those of other scientific bodies in the United States, the documents were on motion referred to a committee, as follows: Mr. Phillips, Dr. Bridges and Dr. Morton.

A letter was read from Mr. J. D. Dana, Chairman of the committee of the Association, dated New Haven, May 6th, 1845, in relation to the same subject.

On motion of Prof. Johnson: Resolved, That the Library Committee be directed to inquire what measures can be adopted to place the Academy in possession of a copy of the highly valuable work of Mr. Audubon on the quadrupeds of the United States, now in course of publication.

Meeting for Business, May 27, 1845.

Vice President Morton in the Chair.

The Committee to whom was referred a communication from Mr. Edward Harris, read April 1st, 1845, on the Geology of the Upper Missouri, reported in favor of publication.

To Professor Henry D. Rogers, Samuel George Morton, M. D., and Professor Walter R. Johnson, Committee of the Academy of Natural Sciences of Philadelphia.

GENTLEMEN,—A plain statement of such facts as I have been able to collect in reference to the Geological character of the country bordering on the Missouri River, will perhaps be preferable to attempting a detailed reply to the questions proposed by your Committee to Mr. Audubon and myself on our departure for the upper waters of the Missouri in the spring of 1843. I would beg leave to remark that our opportunities for Geological research fell far short of our anticipations. The extent of our journey was unexpectedly limited to the mouth of the Yellowstone, and just before leaving that place, a diagram, which I had formed of the strata in the hills rising back of Fort Union, was unfortunately destroyed when too late to replace it. The specimens taken from these strata will be found in the box which I have sent to the Academy. Our opportunities in descending the river were also far from being favorable. Frequent storms and high winds obliged us to lie by in places which we would not have chosen for any of the purposes of the expedition, so that by taking advantage of all the good weather to hasten our progress, we were only able to reach St. Louis in our Mackinaw boat on the sixty-third day from Fort Union.

In the whole course of the Missouri, from its mouth to the mouth of the Yellowstone, the strata are *horizontal*, and as we passed up the River, I noted the points at which each of the principal series was lost under the water by the rise in the bed of the stream. Thus—the lower series of secondary limestone disappears a few miles above Bellevue, and at Cabaué's Bluff, twenty miles further, a ledge of rocks crosses the river beneath the water, causing a slight rapid at a low stage water. I take this to be the last evidence of that formation. From Cabaué's Bluff to the Grand Sioux River, a distance of about 160 miles, the River approaches the Bluffs in but few places, and in those places the rock, of about 60 feet in thickness, appeared to be a soft sandstone. (In no part of this formation had we an opportunity of landing to ascertain the nature of the rock, still I thought we were near enough to pronounce it sandstone.) This stratum loses itself in the River near the Grand Sioux. At this place a stratum of soft clay stone appears, which runs to within a few miles of the lower end of the Great Bend where there is another submerged ledge of rocks crossing the river. Then we have Nicollet's great bed of clay, which is visible until you pass the Mandans, terminating between Beaver and Grand Rivers. Here commences what I have called the Yellowstone series, which probably continues to the great Falls of the Missouri, or until it is met by the outcropping rocks of the mountain range, if these Falls be not formed by such outcropping.

Thus we have in the ascending series—No. 1, The secondary limestone from the first Bluff on the Mississippi, above the mouth of the Ohio, to Cabaué's Bluff on the Missouri, ten or twelve miles below Old Council Bluffs. No. 2, Yellow sandstone (?) to Grand Sioux River. No. 3, Clay stone to lower end of Great Bend. No. 4, Nicollet's clay to a point between Beaver and Grand Rivers. No. 5, The Yellow stone formation. It will be perceived that the loca-

lities named as the ending of one and beginning of another series, are not in fact the beginning of the upper bed, but are the points where the superior stratum of the last series is lost sight of in the River. Hence it is evident (from the fact of the strata being perfectly horizontal) that while the lower series will never be seen higher up the river than the points indicated, the superincumbent series must have its beginning many miles lower down, according to the height of the Bluffs and the angle of descent of the stream.

Whenever we ascended the Bluffs to the High Prairies, we found them more or less covered with a Boulder drift, with frequent denuded points, leaving the larger Boulders lying upon the regular strata. As we ascended the River, the Boulders, which are much worn and rounded, increased in size (with some variations) until we reached the high hills of the *second Great Bend*, between the Mandans and the mouth of the Yellowstone, say, from the size of paving stones at Fort Croghan to rocks of several tons at the second Great Bend, after which, and at the Yellowstone, half a ton would probably be the size of the largest Boulder.

The exceptions to perfectly horizontal stratification are only found in series No. 4, and appear to have arisen from two causes—from slides of the Bluffs, and from the fact of their frequently taking fire and burning for several years, causing the Bluffs to sink and crumble down. Mr. Bell was the only one of our party who had an opportunity of witnessing the burning of the cliffs, while on a hunting excursion about 30 miles above the Yellowstone on the northern bank of the Missouri. Smoke was issuing from the summit of the cliffs under which he was riding—there was a thin seam of coal on a line with the smoking part of the cliff, but where it was burning, and where the fire appeared (by the crumbling down of the cliff) to have passed, there was no coal visible. I am inclined, from this circumstance, and from having found remains of coal in a stratum of sandstone containing impressions of leaves, and bearing evident marks of fire, to think with Lewis and Clark, that the burning of the cliffs is to be attributed to the spontaneous ignition of the coal. The soil in No. 4 and 5 is strongly impregnated with salts, apparently sulphate of magnesia (?) so that most of the brooks and springs are saliferous. In excursions on the Prairies it is difficult to find good water. Soon after rains it may be found in small basins, but these soon become brackish, unless they are in the detritus of the drift.

Series Nos. 3 and 4 appear to contain the greatest quantity of crystallized salts, such as alum, copperas and sulphate of magnesia, and saliferous springs and streams in great numbers. Warm springs are said to exist, but we did not meet with them. We found a substance like petroleum in color and consistence, but without odor. Crystallized gypsum ? (see specimens) is exceedingly abundant in No. 4, lying in thin veins, cutting the regular stratification at right angles. Fossil shells abounded most in No. 4.

In No. 5 commence the remarkable strata which form the picturesque hills noticed by travellers, and called the Mauvaises Terres by the trappers and voyageurs. The strata vary from a few inches to a few feet in depth, and from the variety of their colors, and from the singular forms and grouping of the hills into which the great Bluff of the high Prairie is gullied by the torrents of ages,

they appear in many places more like the work of art than nature. They are usually called Clay hills by travellers, but repeated inspection has satisfied me that clay occupies but a small number of the strata, at least in the vicinity of Fort Union. There are strata of sand, clay, shale, sandstone and coal alternating, but without regularity. I have frequently seen a stratum of sand completely covered by the washing from a superincumbent stratum of clay, like a coat of paint, so that its nature could only be ascertained by scraping off the thin covering of clay. I am inclined to think, however, that the proportion of clay is greater in the lower strata of this series, immediately overlying the Nicollet clay. The cause of the singular castellated appearance of these hills is the great variety of materials of which the strata are composed being acted upon in various degrees by atmospherical influences, according to their capability of resisting them; hence the spires, pyramids, cones and other forms cut out by the torrents, are frequently capped by hard sandstone, while the stratum, immediately underlying it, may be sand or clay, which being more easily affected by the atmosphere, crumbles away and leaves the sandstone projecting, and so on with thirty or forty distinct strata of hard and soft sandstone, sand, clay, shale and coal, of very marked shades of color, and in many places reddened by the action of fire. I should have remarked that the visible coal seams which commence in the upper part of No. 4, are most abundant soon after entering into No. 5, and become small and few in number about the Yellowstone. I counted in one place eight seams of coal between the river bank and the top of the Bluff, varying from six inches to four feet in thickness. This coal is very light, and ignites with difficulty, emitting a very unpleasant odor while burning. Fossilized wood is very abundant in No. 5; I saw one specimen very much flattened by the pressure of overlying strata. Small beds of limestone are found at Fort Union.

In regard to the evidences of volcanic matter overlying the stratified rocks on the borders of the Missouri, and of the existence of red pumice in such situations, I have no where been able to discover them, although I sought them diligently in my frequent excursions into the Mauvaises Terres. The red appearance of the shale and clay, and in many instances of the sandstone, is, I believe, to be attributed to the action of fire, but may be more readily accounted for from the effects of the spontaneous combustion of the coal going on at the present day, than from volcanic agency. These evidences of fire occur in so many of the strata at such different levels, that to give them the latter origin we are compelled to suppose a succession of eruptions, but in this case what has become of the tuffa and lava? It is impossible that I could have failed in discovering some evidences of their existence. Still I do not pretend to deny that the pumice which is so frequently found floated down the Missouri, may have had its origin in these hills, and may have been found there by Mr. Catlin; (I do deny that it is the cause of the red appearance of the hills) but may it not be accounted for by the action of these spontaneous fires? *May not pumice be found without volcanic action?* Some of the specimens of sandstone with impressions of leaves, in the box sent to the Academy, are evidently changed in their specific gravity by the action of fire, and your Committee will be better able than my-

self to judge, whether an increase of the heat, short of that necessary to produce vitrification, may not have converted the mass into the red pumice of the Missouri.

In a bed of soft sandstone at the mouth of Cannon Ball River, great numbers of those singular stones are found, which give name to the stream. The following remarks from my Journal, made on the passage up the River, were fully confirmed when we stopped at the mouth of Cannon Ball River on our return: "June 6—On passing the mouth of Cannon Ball River yesterday, we noticed a remarkable formation in this stratum" (soft sandstone) "of round masses of rock" (hard sandstone) "in the divisions of the strata, many of them apparently perfectly spherical, and from 18 to 30 inches in diameter, some as perfect as cast balls, others appear to be flattened or composed of two sections of a sphere, from a smaller ace up to a hemisphere, joined together with mathematical nicety, and surrounded by a belt or zone at the junction, projecting from one to four inches, which zone lies horizontally in the line of division of two strata. I had observed traces of this peculiarity in the rock the day before, and this evening, 30 miles below the Mandans, I noticed it again. Cannon Ball River takes its name from the presence of these balls. They are said to be hollow, and to contain crystals." The last remark was not confirmed by the opening of two large specimens brought home by Mr. Audubon, which were found to be solid and of uniform texture throughout.

A somewhat analogous formation occurs in the region of the Yellowstone. It consists of a similar hard sandstone, lying also in the direction of the strata of soft sandstone, but in form like a flattened trunk of a tree swelling out at the root, and might be taken for fossilized wood, but that it is destitute of concentric rings, and laminæ can always be traced in the direction of the longest diameter of the elliptical end, sometimes in exact correspondence with, and in other instances lying obliquely to, that diameter. I have seen them *in situ* projecting ten feet horizontally and perpendicular to the face of the cliff. I have seen others of more than twenty feet in length lying at the foot of the cliff whence they had fallen. The smaller end always exhibits the appearance of a transverse fracture with edges sharp and well defined, the larger end rounded and resembling the head of an immense bone fitted to work in a socket.

If this meagre statement of facts and the few specimens which accompany it, will serve in a small degree for the better appreciation of the Geological character of this interesting region, and hold out any inducement to well qualified persons to undertake its investigation, the object of the undersigned will be accomplished.

Yours Respectfully,

EDWARD HARRIS.

The Committee to whom the above paper of Mr. Harris, on certain points in the geology of the Upper Missouri, was referred, having availed themselves of additional information from that gentleman, and examined the specimens brought home by him, submitted to the Academy the following facts and inferences in the form of an appendix to his valuable communication.

Of the Red Pumice of the Missouri.

Upon the question of the origin of this singular substance, the Committee desire to express their general concurrence in the views presented in the paper of Mr. Harris. From the evidence afforded by the series of specimens, it is clear that the so-called Pumice is not a true volcanic product, but is originally an argillaceous sandstone, probably a *lacustrine* deposition of a tertiary age. In its altered, cellular form, it is said to occur loose on the shore, throughout nearly the whole length of the River, as if strewed by the freshets, its specific gravity being frequently less than that of water.

The locality, where it was seen in place, is between the Beaver and Grand Rivers, above the Mandans, on the East side of the Missouri, and therefore about 200 miles below the mouth of the Yellowstone. Here the material offers the most unequivocal marks of being derived from the spontaneous combustion of a sedimentary argillo-arenaceous stratum. The rock is seen in almost every state of gradation from a stratified mass containing beautifully distinct impressions of leaves of terrestrial trees, to a light vesicular pumice. Certain half-fused specimens show indeed the well preserved traces of these leaves, the partially melted condition and the nearly perfect vesicular structure, all upon the same mass. The presence of sulphuret of iron, and of lignite, in the neighboring clays of the same group of strata, suggests a ready source for this spontaneous combustion.

This explanation of the origin of the pumice, sustained as it is by the drawings and descriptions of the scenery given by the Prince Maximilian, and borne out by the fact that no other material, of even an imputed volcanic source, has ever been discovered in the plains of the Missouri, renders it highly probable that the stratified pumice, alleged by Mr. Catlin to exist there, is derived from the same cause. We therefore come to the general conclusion, which best accords with all that is known of the topographical features of the region, that no trace of volcanic action is visible East of the Rocky Mountains.

The leaves imbedded in the stratum which produces the pumice-like material, bear a near resemblance to those of the common beach tree, (Fagus ferruginea,) they are at all events the leaves of an exogenous tree of a recent type.

Proofs of a Freshwater formation, near the Mouth of the Yellowstone River.

In the immediate vicinity of Fort Union, near the junction of the Yellowstone and Missouri Rivers, in the group of strata designated as No. 5 in Mr. Harris's paper, occur incontestible proofs of a freshwater formation. At a dis-

tance from the Fort of about half-a-mile, that gentleman had a view of the horizontal outcrop of the lands of rock through a height of about 80 feet, commencing 80 or 100 feet above the river, and terminating more than 100 feet below the general level of the rolling plains, which are here nearly 300 above the bed of the Missouri. The section which he constructed was subsequently lost. It exhibited 15 different beds of alternating soft clays, uncemented sands, and soft argillaceous sandstone.

In the upper part of this section occurs *lignite*, some of which is in the condition of a very friable charcoal.

The fourth and fifth layers in this section are especially interesting. The 4th is a bed of clay, the 5th a layer not more than one foot in thickness, of a brown ferruginous argillaceous rock. They contain three or four species of freshwater univalve shells, Lymnea, Planorbis, &c. One of the species of Planorbis it is conjectured may be a form now extinct, but the mutilated condition of the specimens prohibits a positive opinion.

Within one mile and-a-half of the locality of the section just alluded to, there is a stratum of fine-grained argillaceous sandstone of a light-grey colour, with minute black specks. This occupies a higher level than the top of the section. The rock is exposed in a quarry through a thickness of 20 or 30 feet, whence building stone has been procured for the foundations of the fort. Like the beds previously described, this stratum furnishes proof of a freshwater origin. Among the specimens from it, is one presenting the two valves of a bivalve shell, apparently an *Anadonta?*

It also contains leaves of deciduous trees, bearing a close resemblance to those of the Beach. Besides these indications we have evidences derived from the remains of what was probably a mammiferous animal. Two fragments of bone procured at one of the above localities, indicate by their cancellated structure an animal of this type; but they were too imperfect to enable us to decide the order to which they belong.

The proofs thus afforded of a probably widely diffused freshwater formation in the region of the Upper Missouri, reposing upon the cretaceous strata, and imbedding remains of a manifestly tertiary age, are just at this time invested with considerable interest, from their according with the discoveries recently made by Captain Fremont, of the presence of other and probably extensive freshwater tertiary strata in the Oregon Territory.

All which your Committee beg leave respectfully to Report.

HENRY D. ROGERS,
S. G. MORTON,
WALTER R. JOHNSON.

Philadelphia, May 15th, 1845.

Description of Reptiles from South America, supposed to be new.

By EDWARD HALLOWELL, M. D.

COLUBER *Spixii.*

Description.—Head elongated, large, covered above with nine plates: the rostral plate is large, pentagonal, incurvated below, the upper extremity is rounded; the anterior frontals are large, quadrangular; the posterior frontals are larger than the anterior; they are pentagonal; the vertical plate is large, pentagonal, broad anteriorly, the sides incurvated to receive the margin of the superior orbitar plates; the superior orbitar are large, pentagonal, the posterior margin the broadest; the occipital plates are large, pentagonal, and are joined anteriorly to the vertical, the supra-orbitar, and the post-ocular plate; there are two nasal plates with the nostril placed between them; there is one loral plate (♀) which is quadrangular; the anterior orbitar plate is large and also quadrangular, the upper margin broader than the inferior; there are two post-ocular plates, both of which are quadrangular; there are eight superior labial plates, the seventh and eighth the largest; the eyes are large and projecting; irides ———; body long, somewhat slender, thickest near the middle; tail long; body covered above and on the sides with large quadrangular scales, which are smooth; the scales upon the tail are also smooth, quadrangular.

Abdominal scuta 164: subcaudal 113.

Colour.—Upper part of head sea-green; this colour predominates upon the sides as far as the inferior margin of the orbit; margin of upper jaw straw colour; upper part and sides of body and tail also sea-green; the chin, throat, and under part of body and tail are straw colour.

Dimensions.

	Feet.	*Inches.*
Length of head,	0	1¼
Greatest breadth,	0	½
Length of body,	3	11
Length of tail,	1	7

COLUBER *fuscus.*

Description.—Head of moderate size, elongated, covered above with nine plates; the rostral plate is hexagonal, rounded above; the anterior frontals are of moderate size, pentagonal; the posterior frontals are larger than the anterior, pentagonal; the vertical plate is long, pentagonal, broad anteriorly; the superior orbitals are quadrangular, the posterior margin somewhat rounded: the occipital plates are large, pentagonal, they are joined anteriorly to the vertical, the supra-orbitar, and the upper post-ocular plate; there are two nasal plates, which are rather large, with the nostril placed between them; there is one ant-ocular and two post-ocular plates; the anterior is larger than either of the posterior, its anterior margin the broadest; there is one loral plate, which is long and quadrangular; the eye is large and projecting; irides ——; there are nine superior labial plates, the seventh and the eighth are the largest; the neck is

slender; the body is long and also slender, thickest at the middle; the tail is l , and tapering; the scales upon the tail and body are smooth and quadrangular.

Abdominal scuta 190: subcaudal 115.

Colour.—Head above and upon the sides, as far as the superior margin of the orbit, of a dark brown colour; the upper part and sides of the body are also brown; the chin, the throat, and under part of the tail, are straw colour.

Dimensions.

	Feet.	Inches.	Lines.
Length of head,	0	1	0
Greatest breadth,	0	0	10
Length of body,	2	6	0
Length of tail,	0	13	0

COLUBER *Pickeringii.*

Description.—Head large, rounded posteriorly, covered above with nine plates; the rostral plate is large, hexagonal, curved inferiorly; the anterior frontals are large and pentagonal; the posterior frontals are hexagonal, larger than the anterior; there are two nasal plates, with the nostril placed within them; the vertical plate is large, broad anteriorly, incurvated at the sides, where it receives the internal margin of the superior orbitar plate; the occipital plates are large, pentagonal, they are joined anteriorly to the vertical, the supra-orbitar, and the upper post-ocular plate; there is but one ant-ocular plate; there is one loral plate, which is quadrangular: there are two post-ocular plates, which are also quadrangular; the eye is large and projecting; there are nine superior labial plates, the seventh and eighth the largest; the neck is slender; the body is long, thickest at the middle; the tail is long and tapering; the scales upon the tail and body are quadrangular.

Colour.—Head, body and tail, are of a sea-green colour; upper and lower jaw, chin, throat, abdomen, and under part of tail, straw colour.

Abdominal scuta 160: subcaudal 128.

Dimensions.

	Feet.	Inches.
Length of head,	0	1¼
Greatest breadth,	0	1
Length of body,	4	10
Length of tail,	2	1 ?

COLUBER *vittatus.*

Description.—Head of moderate size, depressed, covered with nine plates; the rostral plate is hexagonal, incurvated below; the anterior frontals are small and quadrangular; the posterior are larger than the anterior, they are pentagonal; the vertical plate is of moderate size, it is hexagonal, and broader anteriorly; there is but one nasal plate; the nostril is placed near its anterior margin: there is a loral plate, which is quadrangular; there are two post-ocular

and one ant-ocular plate, which is pentagonal; the supra-orbitar plate is pentagonal, the inferior margin being curved to receive the upper margin of the eye; the occipital plates are pentagonal, larger than the other plates; the eyes are of moderate size and projecting; there are eight superior labial plates, the sixth and seventh are the largest; the neck is slender; the body of moderate size; the tail is short and tapering; the body and tail are covered with smooth quadrangular scales.

Colour.—Head above and upon the sides, as far as the inferior margin of the orbit, black; irides ——; body black above, the cuticle being removed, ash-coloured upon the sides; there are two white vittæ, extending, one on each side of the body and tail, as far as the extremity of the latter; a row of minute white spots extends along the sides of the neck and anterior half of the body, more indistinct in the former; there is also upon the sides of the neck a row of dark coloured spots, more or less oval; under surface of chin, throat, abdomen and tail, of a light straw colour.

Abdominal scuta 166; subcaudal 36.

Dimensions.

	Feet.	Inches.
Length of head, - - - -	0	1
Greatest breadth, - - - -	0	7/16
Length of body, - - - -	1	5
Length of tail, - - - -	0	5

COLUBER *fuliginosus.*

Description.—Head small, depressed, covered like the rest of this genus with nine plates; the rostral plate is of moderate size, incurvated below, rounded superiorly; there are two anterior and two posterior frontal plates, the former are quite small, the latter much the larger, they are quadrangular; the vertical plate is small, hexagonal, broadest in front, more extended in the lateral than the longitudal direction; there are two occipital plates which are larger than either of the others; the supra-orbitar plates are quadrangular; there are two posterior orbitar plates, and there is no ant-ocular plate; the loral plate extends backwards as far as the eye; there are two nasal plates, with the nostril placed between them; there are six superior labial plates, the sixth is the largest; the eyes are small and slightly projecting; the neck is slender; the body of moderate size, covered with smooth quadrangular scales; the tail is tapering.

Colour.—Body and tail dark brown; upper part of head and sides brown as far as the inferior margin of the orbit; irides——; upper jaw, chin, throat, under parts of abdomen and tail, light straw colour—the latter mottled with brown.

Abdominal scuta 158: subcaudal 28.

This species very much resembles the C. *fuscus*, for the young of which it might be taken; it differs from it, however, in the form of the head, which is much more depressed, and in the arrangement and form of its plates; the tail also is much shorter.

Dimensions.

	Feet.	Inches.
Length of head,	0	¼
Greatest breadth,	0	¼
Length of body,	1	2
Length of tail,	0	11¼

COLUBER *Ashmeadii.*

Description.—Head of moderate size, covered with nine plates, of these the occipital are the largest, they are pentagonal; the vertical plate is hexagonal: it is joined anteriorly to the posterior frontal and to the ant-ocular plates, posteriorly it is connected with the occipital; its sides are incurvated to receive the supra-orbitar plates; the supra-orbitar plates are pentagonal, they are joined superiorly to the vertical; the external margin is incurvated to form the upper portion of the orbit; there is one ant-ocular and two post-ocular plates; the posterior frontals are large and pentagonal; the anterior are smaller in size and quadrilateral; there are two nasal plates, with the nostril placed between them; there are eight superior labials, of these the seventh is the largest; the eye is of moderate size and somewhat projecting; the neck, and posterior part of the body is slender; the body is much thicker in the middle; tail rather long and tapering.

Colour.—Head of a brownish-ash colour above and upon the sides; body ash coloured: a series of bars or blotches, of a darker colour than the rest of the body, extend from the neck to near the extremity of the tail; these are bordered with white; there is a dark coloured vitta extending from the posterior part of the eye to the posterior extremity of the upper jaw; a dark coloured blotch is observed extending from the occiput along the upper part of the neck, on each side, a short distance; the chin, throat, abdomen, and under part of tail are of a light straw colour.

Abdominal scuta 191: subcaudal 113.

This species I have named after my friend Mr. Samuel Ashmead, to whose kindess I am indebted for the opportunity of describing all the species contained in this paper.

Dimensions.

	Feet.	Inches.
Length of head,	0	¼
Greatest breadth,	0	¼
Length of body,	1	¼
Length of tail,	0	5¼

COLUBER *variegatus.*

Description.—Head of moderate size, flattened above, compressed laterally, covered with nine plates; of these the occipital are pentangular; the vertical is small and hexagonal, it is joined anteriorly to the posterior frontals, laterally to the supra-orbitar, and posteriorly to the occipital plate; the supra-orbitar are

pentagonal, broadest posteriorly; the posterior frontals are large and quadrangular; the anterior frontals are much smaller than the posterior, they are pentagonal; the supra-orbitar plates are hexagonal; there are seven or eight superior labials, of these the sixth is the largest; the eyes are very large and projecting; there is one anterior orbitar plate, which is quadrangular, and extends from the eye to the nasal plate; there are two nasal plates, with the nostril placed between them, which is small; the neck and body are slender, thickest near the middle, and very much compressed; the tail is of moderate length and tapering; the body and tail are covered above and upon the sides with smooth quadrangular scales.

Abdominal scuta 178: subcaudal 96.

Colour.—Predominating colour of head, body and tail, brownish mingled with ash; a series of transverse bands or fasciæ, of a brown colour, margined with white, extend across the body and tail from the neck to the extremity of the latter; those upon the body are separated from each other by intervening spaces on the upper half, about half an inch in length; under surface of chin, throat, abdomen and tail, of a straw colour, with a row of brownish spots running along the centre of the latter; they exist also, but are indistinct, upon the neck; the brownish transverse bands, above described, extend a short distance upon the abdomen; those on the lower half nearly meet; those on the tail meet in the centre.

Dimensions.

	Feet.	Inches.
Length of head,	0	¾
Greatest breadth,	0	5/8
Length of body,	1	1
Length of tail,	0	4½

COLUBER *atratus.*

Description.—Head small, depressed, covered above with nine plates; the rostral plate is hexagonal, incurvated beneath; the anterior frontals are quadrangular, the vertical small and hexagonal; the occipital plates are pentagonal; there is a small quadrangular plate extending from the eye to the nasal plate; the eye is small; the irides ——; there are six plates upon the margin of the upper jaw, of these the fourth is the largest; the body is long and slender, covered with small, quadrangular, carinated scales; the tail is short and tapering.

Abdominal scuta 145: subcaudal 46.

Colour.—A whitish band extends across the occiput; upper part of body and tail slate colour; chin, throat, abdomen and tail, of a straw colour.

Dimensions.

	Inches.
Length of the head,	¾
Greatest breadth,	¼
Length of body,	10½
Length of tail,	2½

This species resembles very much our C. *punctatus*, but wants the spots upon the abdomen. The latter, however, are occasionally absent in the *punctatus*; it may, therefore, notwithstanding the remoteness of its habitat, very possibly be the same species. It would appear to be common, four specimens having been observed in the collection.

TRIGONOCEPHALUS *Colombiensis*.

Description.—Head of moderate size, triangular, presenting two small plates in front, and a row of smaller scales immediately behind; the rest of the upper portion of the head is covered with small polygonal scales, those in front of the supra-orbitar ridges are somewhat larger than the others; the rostral plate is large and hexagonal; the nostril is of moderate size; there is a deep fossa between the eye and the nostril; the eyes are oval, rather large, and projecting; the supra-orbitar ridges are very prominent; there are seven superior labial plates, of these the fifth is the largest, it is pentagonal; the neck is slender; the body is triangular, thickest at the middle; the tail is short, and tapering to a point; the plates upon the under part of the tail are bifid; the body is covered above and upon the sides with quadrangular carinated scales.

Abdominal scuta 207: subcaudal 70.

Colour.—Superior part of head, body and tail, of a light yellowish ash-colour; upon each side of the body is a row of blotches, triangular in shape, of a darker colour than the rest of the body, approaching to olive; the intervening spaces present numerous spots of the same colour; there is a row of dark coloured spots extending along each side of the abdomen; under surface of throat, abdomen and tail, are straw colour.

Dimensions.

	Feet.	Inches.
Length of head,	0	1
Greatest breadth,	0	1
Length of body,	1	5½
Length of tail,	0	2½

This species resembles very much the Trigonocephalus *lanceolatus*, Oppel. or *Vipere jaune* of the French, but differs from it in its habitat, (the latter being found in Martinique,) and in the number of its plates. In the *lanceolatus* there are 225 to 228 plates upon the abdomen, and from 29 to 61 upon the tail.

LEIOLEPIS *Audubonii*.

Description.—Head pyramidal, covered above with numerous polygonal scales; those upon the front of the head are much the largest; they are seventeen or eighteen in number; the rostral plate is pentagonal; the frontal plates are quadrangular; the nasal plates are large and pentagonal; the nostrils are large and directed forwards; there is a small quadrangular plate between the nasal and the frontal plates; there are five plates along the margin of the upper jaw, they are oblong, quadrilateral; the eyes are oval; the eyelids are covered

with numerous small granules; the tympanum is circular and placed a little below the surrounding surface; the extremities are of moderate size, the anterior reach as far as the extremity of the snout; the form of the body is slender, and compressed; it is covered with scales, which vary according to their situation—in the back they are hexagonal and carinated, in the sides they are more or less circular, with indistinct carinæ, in the abdomen they are quadrangular, and strongly carinated; the tail is more than twice the length of the body, it is covered with carinated scales.

Colour.—The head and upper parts of body are of a brownish chocolate colour, variegated with spots of green and yellow; tail chocolate colour; under surface of chin, throat, abdomen and extremities, straw colour, with numerous dark colored spots.

Dimensions.

	Inches.
Length of head,	1¼
Greatest breadth,	¾
Length of body,	4
Length of tail,	11¼

The specimens above described were found in the Republic of Columbia, within two hundred miles of Caraccas. As far as I have been able to ascertain they are new, with the exception of the Coluber *atratus*, and the Trigonocephalus *Colombiensis*, both of which are somewhat doubtful; the latter resembles very much the plate of the *lanceolatus*, as given in the Regne Animal of Cuvier, except that the triangular spots upon the sides meet upon the back, whereas, in our specimens—of which there were two—they are distinct. It differs from it also, as above stated, in the number of the abdominal and subcaudal plates. Among them was a specimen of the Amphisbæna *fuliginosa*. They were all preserved in spirits.

Descriptions of New Species of African Reptiles.

BY EDWARD HALLOWELL, M. D.

CALOTES *versicolor*.

Description.—Head pyramido-quadrangular, longer by one third in the antero-posterior direction than it is broad posteriorly; its upper surface is covered with polygonal scales of nearly uniform size, carinated for the most part; occipital scale large, hexagonal; the region in front of the eyes is convex; in its centre are two scales strongly carinated; the posterior or superior one is pentagonal; the inferior, which is the longest, is quadrilateral; supra-orbitar regions very convex, leaving a marked depression between them; nostrils large, situated near the posterior margin of a large triangular and strongly carinated scale; rostral plate of moderate size, hexagonal, smaller than upon the chin, which is triangulo-pentagonal; imme-

diately behind it are six or seven small imbricated and carinated scales; there are eighteen or twenty oblong quadrilateral labial plates in each jaw; eyes of moderate size, lids covered with numerous small and whitish granules, which are smooth; auditory foramen large; the tympanum is situated at some distance within its orifice, which presents upon its superior and lateral margins a series of small and pointed spines; a row of pointed spines is observed behind the ear, commencing at the angle of the lower jaw, and extending a short distance upon the sides of the neck; besides this row, which is well defined, there are several smaller rows and clusters of spines upon the sides of the back and posterior parts of the occiput; the tongue is triangular, slightly bifid in front, deeply notched behind—it is covered with numerous pointed papillæ posteriorly, smooth in front; there are three incisors and two canine teeth in the upper jaw; these are separated from each other by a wide interval; in the lower jaw there are two small incisors, having on each side two canine teeth placed obliquely; there are seventeen teeth on each side of the lower and as many on the upper jaw; there are two folds under the neck, the anterior is much larger than the posterior, and represents a V in its middle, there is also a fold upon its side; upon the back of the neck a small crest, extending from the occiput as far as the shoulders; the posterior part of the head is covered with numerous hexagonal imbricated and carinated scales of nearly equal size; neck, body, and upper surface of extremities and tail covered with quadrangular, imbricated, and strongly carinated scales; the carinæ extend the whole length of the scale, each terminating in a sharp point; the points of those upon the neck and occiput are directed forward; those upon the body and extremities are directed backward; the scales upon the body are arranged in oblique rows, the fine edge of the scale looking upward and backward; scales upon the chin, and under surface of the extremities, smooth; there are no femoral pores; a series of pores in front of the anus; tail conical, large at its base, covered with imbricated and carinated scales, much larger than upon the body, each ending in a point.

Colour.—Head, chin, throat, abdomen and extremities of a light olive colour; body, upper surface of extremities and tail, presenting generally a tinge of green mingled with olive.

Dimensions.

	Inches.	*Lines.*
Length of head - - - -	1 (Fr.)	0
Length of anterior extremities, - -	0	18
Length of posterior extremities - -	2	4
Length of neck and body, - - -	2	10
Length of tail - - - -	17	4

Habitat.—Liberia, West Africa.

This specimen, with a number of others, was sent to me by the Rev. James Matthias, formerly Governor of Liberia; they are said to exist in

considerable numbers in the vicinity of the different settlements, and are highly prized by the natives as an article of food.

RANA *Bibronii*.

Description.—Head large, triangular, slightly convex above, truncated anteriorly, nostrils distinct, situated nearer the snout than the orbit; tympanum very distinct, circular, of a bronze colour, with a dark point in the centre; eyes very large, not remarkably prominent; tongue large, cordiform, notched posteriorly, having a slight indentation at its point; opening of the mouth large; teeth in the upper jaw numerous, very finely pointed, of nearly equal size; those of the palate seven or eight in number on each side, situated on a line with the anterior margin of the posterior nares; posterior nares large; eustachian foramina very distinct; body slender, extremities idem; web of the toes extending as far as the distal extremity of the antepenultimate phalanx, except of the fourth, which is much longer than the third and fifth, the latter are of nearly equal length; subarticular tubercles distinct; skin smooth, thrown into numerous longitudinal folds upon the back; no glands or pores are observed in any part of the body.

Colour.—Body above grayish, with numerous dark coloured blotches upon the head and back; a band of white extends from the tip of the snout to the extremity of the body; along the sacrum this band is very narrow, upon the body and head it is much broader, occupying in the latter situation the whole of the space between the orbits; throat, chin, and under parts of body, white.

Habitat.—Liberia, West Africa.

Dimensions.

	Inches.	*Lines*.
Length of head, - - -	0	7½
Breadth, - - - -	0	7
Length of body, - - -	1	4
Length of anterior extremities, -	1	1
Length of posterior extremities, -	3	5

PYTHON *Liberiensis*.

Description.—Head large, triangular, covered anteriorly with plates, which extend to some distance behind the eyes; the rostral plate is pentagonal; there are two anterior and two posterior frontal plates; the former are elongated and quadrilateral; the latter are large and also quadrilateral; there are eight circumorbitar plates, of these the two superior? are much the largest; the eyes are large and projecting; there are thirteen superior labial plates, of these the seventh on one side, and the eighth on the other are the largest; the nostril is small, and placed near the upper margin of a large triangular plate; between this and the circumorbitar plate is a number of small polygonal scales; upon the upper part of the head, at its centre, between the two large supra-orbitar plates, are two hexagonal plates; in front

and posterior to them, are a number of polygonal scales varying in size; the posterior are the largest; the body and tail are covered with smooth quadrangular scales.

Colour.—Head brownish above and upon the sides; a yellow band extends from the snout to the posterior extremity of the upper jaw, passing immediately over the orbit; this is continuous with one which passes across the angle of the mouth and terminates in front of the orbit; the body is brownish, variegated with yellow; these markings form a beautiful robe, but have no determinate forms; upon the sides of the body is a series of dark colored blotches margined posteriorly with yellow; under surface of abdomen and tail straw colour, clouded with numerous dark coloured spots, larger upon the tail.

Dimensions.

	Feet.	*Inches.*
Length of head,	0	1½
Greatest breadth,	0	¾
Length of body,	1	11½
Length of tail,	0	3½

For the opportunity of describing this and the preceding species, I am indebted to the kindness of my friend Dr. Blanding, whose services in the illustration of the Zoology of this country and of Africa are well known. The specimens were preserved in spirits, and the colours have no doubt more or less changed. Among them was a horned snake, which appears to be the COLUBER *nasicornis* of Shaw, but his description is imperfect, and his figure incorrect; I would propose for it the name CERASTES *nasicornis*.

The Monthly Report of the Corresponding Secretary was read and adopted.

ELECTION.

William Rich, Esq., Botanist to the U. S. Exploring Expedition, was elected a Correspondent of the Academy.

Stated Meeting, June 3, 1845.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

Fine specimen, in spirits, of Amblyopsis spelæus, Dekay? (an eyeless fish) from the Mammoth Cave, Kentucky. Presented by Mr. Samuel W. Riggs, of New Orleans.

The following fossils from the cretaceous and Eocene strata of South Carolina, presented by Dr. R. W. Gibbs, of Columbia, S. C., viz: Plagiostoma gregale, Morton; Balanus peregrinus, Morton; Scutella pileus-sinensis, Ravenel; S. macrophora, Rav.; and some teeth of a Squalus—also a specimen of elastic sand-stone.

Twenty-seven skins of the following species of South Australian Birds, in fine order, presented by Mr. John Morphett, of Adelaide, New Holland, through George R. Gliddon, Esq.

Falco cenchroides? Hors. & Vig.?
" berigora? "
Cracticus tibicen, Lath.
Pachycephala pectoralis, Hors. & Vig.
Malurus cyaneus, Gm.
" leucopterus, Hors. & Vig.
" " (young.)
" malachurus, Shaw.
Ptyctolophus galeritus.
Calyptorhynchus Banskii, Lath.
" Cookii, Temm.
Platycercus Pennantii, Lath.
" flaviventris, Temm.
Trichoglossus hæmatodus, Linn.
" concinnus, Shaw.
" pusillus, Lath.
Nanodes venustus, Temm. (2 spec.)
" undulatus, Shaw.
Meliphaga Novæ Hollandiæ, Lath.
Porphyrio melanotus, Temm.
Ardea Novæ Hollandiæ, Lath.
Platycercus ——— young.
Pezoporus Novæ Hollandiæ? Lath.
Meliphaga ——— young
Acanthiza ———
Podiceps ———

DONATIONS TO LIBRARY.

Report of the Geological and Agricultural Survey of the State of South Carolina. 1844. By M. Tuomey. From Dr. R. W. Gibbes.

Report of the commencement and progress of the Agricultural Survey of South Carolina for 1843. By Edmund Ruffin. From the same.

A geographical, chronological and historical Atlas, on a new and improved plan, or a view of the present state of all the kingdoms, empires, states and colonies in the known world. By John L. Blake, A. M., &c. New York, 1826. From Thomas C. Percival, Esq.

Arguments of the defendant's counsel, and judgment of the Supreme Court of the United States in the case of Vidal, &c., versus the corporation of Philadelphia. January term, 1844; to which is added the will of Stephen Girard. 8vo. Philadelphia, 1844. From the same.

A letter was read from the Librarian of the Boston Society of Natural History, dated 22d May, requesting for the Society certain missing numbers of the Proceedings of the Academy.

A letter was read from Mr. George R. Gliddon, dated 30th May, 1845, in reference to Mr. Morphett's donation of South Australian Birds, received this evening.

A paper by Dr. Robert W. Gibbes, of Columbia, S. C., intended for publication, entitled "Description of the teeth of a new fossil animal found in the green sand of South Carolina," was read and referred to the following committee: Dr. Morton, Mr. Phillips and Dr. Zantzinger.

Stated Meeting, June 17, 1845.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

Specimen of Mesotype, or needle stone, from the vicinity of Dunluce castle, near the Giants' Causeway, county Antrim, Ireland. From a visitor.

Three specimens, in spirits, of Coluber sirtalis, and one of Coluber eximius. From Dr. Hallowell.

A communication was read from Dr. Dunglison, Secretary of the American Philosophical Society, addressed to Vice President Morton, stating that Prof. John Müller, of Berlin, was desirous of establishing a system of exchanges of specimens of Natural History with Institutions in this country, and requesting the attention of the Academy to the subject. Referred to a committee consisting of Messrs. Vaux, Phillips and Cassin.

A letter was read from Dr. Edmund Ravenel, of Charleston, S. C., dated June 14, 1845, containing a description and drawing of a recent specimen of Scutella, found at sea, off the coast of South Carolina, and supposed by him to be new. Referred to the following committee: Dr. Robert E. Griffith, Dr. Morton and Mr. Phillips.

Meeting for Business, June 24th, 1845.

VICE PRESIDENT WETHERILL in the Chair.

The Committee on the Rev. Mr. Zeigler's paper, describing new North American Coleoptera, read April 8th, 1845, reported in favour of publication.*

The Committee on the following notice, by Dr. Ravenel, of a new Scutella found off the coast of South Carolina, read at last meeting, reported in favour of publication.

Description of a new recent species of Scutella.

By EDMUND RAVENEL, M. D., of Charleston, S. C.

SCUTELLA *gibbosa.*

Specific character.—Subpentagonal, truncated posteriorly; margin thick and rounded; ambulacra large, oblong-oval, with open apices; upper surface convex, the convexity terminating rather abruptly at the apices of the ambulacra; lower surface slightly concave, with five simple, broad, compressed grooves

*To appear in a future No. of the Proceedings.

extending from the mouth nearly to the margin; vent oblong-transverse, near the margin.

This is a recent species obtained by the dredge at sea, in about 14 fathoms, off Charleston, South Carolina. It is probably abundant, although but few specimens were brought ashore. It is remarkable for its size, and for its dorsal convexity and thick margin.

The Committee to whom was referred the following paper, read at last meeting, by Dr. R. W. Gibbes, of Columbia, S. C., reported in favour of publication.

Description of the Teeth of a new Fossil Animal found in the Green Sand of South Carolina.

By ROBERT W. GIBBES, M. D., of Columbia, S. C.

DORUDON SERRATUS.

Teeth spear-shaped, serrated, in distinct deep sockets with double fangs, the bifurcation commencing a half inch below the enamel, which extends from the point of the tooth one inch; enamel striated; the serræ longitudinal, diminishing in size from the apex of the tooth, which is ¼ of an inch from the first lateral point; length of the tooth 3¼ inches; breadth 2¼ inches; thickness of the body below the enamel *a half inch*; the anterior root a cone compressed laterally, the other prismatic, thicker on the posterior side, which is fluted so as to present the appearance of being partially divided into two fangs. When the fangs are united the neck is contracted, so that a horizontal section presents the yoke shape of the tooth of the *Zeuglodon* of OWEN; in one of the teeth the distance from the extremities of the fangs across is 2½ inches.

The teeth and fragments of a maxillary bone here described, were found in March last, in a bed of Green sand near the Santee Canal, in South Carolina. The locality is on the plantation of R. W. Mazyck, Esq., about three miles from the entrance of the canal from the head waters of Cooper river. The deposite of Green sand is from four to eight feet near the surface, lying on a solid yellowish limestone containing casts of *Cardita Planicosta*, (Sow.,) and *Pecten Mortoni*, (Ravenel,) which, according to the opinions of LYELL and CONRAD, would refer it to the *Eocene* period. Casts of *C. planicosta* are found in the Green sand, which seems, therefore, to belong to the *Tertiary* formation. CONRAD makes the following remarks, in his communication on "the *Tertiary*," addressed to the National Institution.

"In many localities of the former period (tertiary,) the green *sand* is quite as abundant as in the fossiliferous 'marls' of New Jersey." In this deposite is found, in great abundance, *Gryphæa mutabilis*, also *Pecten membranosus*, *P. calvatus*, *Scutella crustuloides*, *S. Rogersii*, *Solarium*?, *Plagiostoma gregale*, *Anomia jugosa*, *Teredo tibialis*, *Scalaria Sillimani*? Casts of a large

Nautilus, probably *Alabamiensis*, (Morton,) vertebræ of *Cetacea*, Teeth of *Crocodiles*, and of several species of *Squalus*; casts of *C. planicosta*, and of a *Terebratula*. Mr. Tuomey, the Geological Surveyor of South Carolina, found also, at this locality, a new *Ostrea* and a large *Lima*. Here also was found a singular fossil, of a conical shape, 15 inches long, fluted externally, somewhat resembling a Belemnite, of which a drawing and description have been forwarded to the Academy of Natural Sciences by Dr. E. Ravenel, of Charleston, South Carolina.

About two miles from this locality a very compact white limestone is found, with grains of silicate of iron intermingled with portions of it, containing *Ostrea sellæformis*, *O. panda*, *Terebratula lacryma*, *Scutella crustuloides*, casts of *Turritella Mortoni*, *Conus gyratus*, *Anthophyllum atlanticum*, *Flustra?* casts of the chambers of a *Nautilus*, *Crustacea*, a *Spatangus*, *Cidaris?* &c. &c. Here also Mr. Tuomey has discovered another new *Ostrea*. This list of fossils is made out from recollection, and without the specimens before me.

With these teeth I have a part of a lower maxilla, containing portions of teeth, 20 inches in length, hollow, filled with the *green sand*. It resembles much the elongated beak of the *Gavial*, but is too imperfect to describe more accurately.

A portion of the anterior part of this jaw contains a cuspidatus, resembling that of the *Megalosaurus*, a single fang, with the protruding crown and point curved but not serrated; it is compressed laterally, and placed obliquely in a socket.

These teeth are all *hollow*, filled with the *green sand* which surrounds them. They differ materially from any genus or species described by CUVIER, OWEN, MANTELL, BUCKLAND, HARLAN, MORTON, or HAYS. A strong resemblance exists, in the form of the elongated snout, to the *Gavials*, while the hollow teeth, characteristic of *Saurians*, differ from them in being seated in sockets, and having two roots.

MANTELL, treating of the teeth of Reptiles, says:

"The characteristic type is that of a conical pointed tooth with a simple root or fang; for in no reptile does the base of the tooth terminate in more than one fang, and this is never branched."

OWEN, in his *Odontography*, (p. 25,) observes:

"Any fossil which exhibits a tooth implanted by two fangs in a double socket must be mammiferous, since the socketed teeth of reptiles have but a single fang, and the only fishes' teeth which approach such a tooth are those with a bifurcate base belonging to certain sharks."

I observe that Professor OWEN has classed the *Zeuglodon* (*Basilosaurus* of Harlan,) with the *Cetacea*. I am inclined to think the *Dorudon*, which I here name, (from δόρυ, a spear,) will, on farther investigation, be found to belong to the same class.

I visited the locality where it was found, but the marling operations of the planters had ceased for the season, and the pits were filled with water. I have made arrangements for excavations in the fall, when I hope to procure other bones of this remarkable fossil. It may then be possible to decide with more authority as to its position in the great scale of extinct gigantic *carnivora*.

Since the above communication was written, I have visited Albany, and through the politeness of Professor EMMONS, had an opportunity of examining the teeth of the *Zeuglodon cetoides*, (Owen.) I was much struck with the similarity in their general characters with those of the *Dorudon*. They are very much of the same form, but the crown rounded instead of hastate—the serratures are similar, though more crenate. The fangs of some are inserted almost perpendicularly, while in others they are divergent, and fixed in the sockets as in the *Dorudon*. The teeth of the *Zeuglodon* are *solid*, of dense structure, and very strong, resembling those of *Cetacea*, while the *hollowness* of those of the *Dorudon* approximate it to the *Saurians*. The jaw of the *Zeuglodon* is much shorter, and proportionally thicker. The conformation being similar, while the specific characters of these teeth separate them, I am disposed to think that the *Dorudon* is an intermediate connecting link between these two great classes.

Professor EMMONS is about to publish correct drawings of the teeth of the *Zeuglodon*, which Professor OWEN has not given, from having imperfect specimens.

References to the Plate.

1. Tusk of Lower Jaw of Dorudon.
2. Edge View of No. 1.
3. Edge View of No. 5.
4. Portion of Upper Maxilla, with Teeth.
5. Inner View, showing the Insertion of the Fangs.

Dr. Morton read a letter from Mr. J. J. Audubon, dated New York, June 3d, 1845, offering to the Academy to dispose of a very fine collection, made by himself, of American Quadrupeds, mounted and in skin, and now in his possession. A list of the same was enclosed, including between sixty-five and seventy species, among which are several Buffaloes, a number of Deer, Antelopes, Elks, Rocky Mountain Goat, Wolves, Grisly Bear, Peccary, Porcupines, and numerous specimens of the smaller quadrupeds. On motion, referred to the Zoological Committee.

The following gentlemen were elected Correspondents of the Academy.

M. E. Chevreul, Director of the "Museum d'histoire naturelle á Paris."

Robert W. Gibbes, M. D., of Columbia, S. C.

Victor Audubon, Esq., of New York.

And Mr. Theodore F. Moss, of Philadelphia, was elected a member of the same.

PROCEEDINGS

OF THE

ACADEMY OF NATURAL SCIENCES

OF PHILADELPHIA.

VOL. II. JULY AND AUG., 1845. No. 10.

Stated Meeting, July 1, 1845.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

A large collection of fossils from the carboniferous limestone of Montgomery Co., Ohio. Presented by Julius S. Taylor, M. D., of Carrollton, Ohio.

Casts of the teeth of Dorudon serratus, Gibbes. From Dr. R. W. Gibbes, of Columbia, S. C.

A collection of Fuci, Corallia, &c., from the Gulf Stream and West India coast. From Peter A. Browne, Esq.

Also from the same donor, a dried specimen of the fruit of Maclura aurantiaca.

Letters were read,

From R. W. Gibbes, M. D., of Columbia, S. C., dated June 28, 1845, returning acknowledgments for his election as a Correspondent of the Academy.

From the Secretary of the Royal Scottish Society of Arts, dated Edinburgh, May 14, 1845, acknowledging the receipt of several numbers of the Academy's Proceedings.

From William Rich, Esq., dated Washington, June 9, 1845, acknowledging the receipt of his notice of election as a Correspondent.

From Dr. Julius S. Taylor, of Carrollton, Ohio, dated April 20th, 1845, in reference to his donation of fossils this evening, with some accompanying remarks on the geology of the district of country from which they were derived.

Mr. Cassin offered the following, which was adopted:

Resolved, That the thanks of this Society be tendered to Dr. Julius S. Taylor, of Carrollton, Ohio, for his valuable and interesting donation of fossils, illustrative of the geology of the county of Montgomery, in that State.

Meeting for Business, July 29th, 1845.

VICE PRESIDENT MORTON in the Chair.

On motion of Dr. Bridges, it was

Resolved, That the Curators be authorized to receive on deposit in the Hall of the Academy, Mr. Richard C. Taylor's collection of European fossils, and that a location therein be provided for them.

The Chairman announced to the Society the painful intelligence of the death of our estimable fellow member, Mr. Thomas Ryan, which took place in this city yesterday morning. Mr. Ryan has contributed largely to the collections of this Institution, in various departments of Natural Science, and his demise will be regarded by his fellow members as a public and a private loss.

Joseph Leidy, M. D., of Philadelphia, was elected a member of the Institution, and

Professor John Müller, of Berlin, and William Tuomey, Esq., of Virginia, were elected Correspondents of the same

Stated Meeting, Aug. 5th, 1845.

MR. CASSIN in the Chair.

DONATIONS TO MUSEUM.

Numerous specimens of the following species of land, fresh water, and marine shells, from New Grenada, viz.:

Venus flexuosa, Pyrula melongena (young,) Mactra carinata, Avicula atlantica, Chiton piceus, Bulimus undatus, Ceratodes cornu-arietis, Purpura patula, Littorina muricata, L. ziezac, Strombus gigas (young,) Ampullaria ——, Neritina ——, Littorina ——, and one specimen of Cypræa exanthema (young.)

Also the following, from the Bay of Carthagena:

Nerita peleronta and var.; N, tesselata, and Triton maculatum. Presented by Mr. Horatio S. Stephens.

Also from the same donor, a collection of about twenty species of plants from San Lucia, New Grenada.

A large collection of fossils from the Siwalah Hills, lying at the southern foot of the Himalayas, between the Sutlej and Jumra rivers. From Capt. P. T. Cautley, of the Bengal army.

Two specimens of Modiola plicata, with shells of a species of Ostrea attached; from Cape May. From Mr. Thos. C. Percival.

Dr. Morton deposited the skulls of two Upsarooka or Crow Indians, two of Assiniboins, and one Cotonay or Blackfoot, procured and presented to him by J. J. Audubon, Esq.

DONATIONS TO LIBRARY.

Chart of the U. S. Coast Survey: New York Bay and Harbor and its environs. From the Treasury Department, through A. D. Bache, Esq., Superintendent of U. S. Coast Survey.

American Journal of Science and Arts, Vol. 49, No. 1. July, 1845. From the Editors.

A letter was read from Victor Audubon, Esq., dated New York, July 21, 1845, acknowledging the receipt of his notice of election as a Correspondent.

And a communication from the American Philosophical Society, acknowledging the receipt of the last number of the Proceedings of the Academy.

Stated Meeting, Aug. 12, 1845.

Vice President Morton in the Chair.

DONATIONS TO MUSEUM.

Specimen of the fruit of Hura crepitans, and a specimen, in skin, of Trochilus moschitus L., from Brazil. From Mr. Theodore Moss.

Two crystals of Selenite, from Ohio. From Mr. Kilvington.

Specimen of Scutella gibbosa, Ravenel, from the coast of South Carolina. From Dr. Ravenel, of Charleston.

Eighteen finely mounted specimens of the following species of European Birds, presented by Mr. A. L. Heermann, viz.:

Vultur fulvus, Linn.	Boschas fera, Briss.
Milvus regalis, Briss.	" crecca, Linn.
Asio bubo, Linn.	Dafila caudacuta, Ray.
Scotophilus Tengmalmii, Selby.	Fuligula cristata, Ray.
Turtur auritus, Ray.	" ferina, Linn.
Columba livia, Linn.	Mergus serrator, Linn.
Marica penelope, Linn.	Totanus glottis, Linn.
Chauliodus strepera, Linn.	" calidris, Linn.
Anas clypeata, Linn.	Scolopax rusticola, Linn.

A number of insects, from Oregon. From the same.

Mr. Cassin, from the Curators, announced that the splendid collection of European fossils, belonging to Mr. R. C. Taylor,

which the Society, by a late resolution, had authorized them to receive on deposit, was now in the Hall.

The Chairman, after making some general remarks on Mr. Taylor's cabinet of fossils deposited this evening, read the following abstract of its contents, from a printed circular, which was issued by Mr. Taylor, and which will serve to convey some idea of their extent and value.

The collection is designed to illustrate the principal English formations. The specimens were selected by Mr. Taylor with great care from their respective localities, during a period of 25 years, commencing in 1805; and although since they have subsequently been subjected to frequent removals from place to place, &c., very few have sustained injury. The greater portion is fixed on blocks covered with paper of different colors. Labels attached to the foot of each block, exhibit the generic and specific name of each fossil, arranged according to Sowerby's Mineral Conchology, and referring to the tables or figures in that work.

In Geological arrangement, the collection commences with the English Diluvium, so called, and proceeds downwards, by sections, from the most recent deposit to the oldest which contains organic remains. In conchological classification, the Univalves, Bivalves, and compound shells, are separated in distinct drawers, and reference to any individual or species is further facilitated under this arrangement, by an alphabetical nomenclature.

The collection has been repeatedly subjected to examination by English Professors and Naturalists of celebrity, and their aid obtained in doubtful cases.

The entire number now contained in the collection, amounts probably to about 4000, all arranged in the mode already mentioned, in drawers with sliding glass covers accurately fitted, and a label in the front of each, indicating the formation to which the specimens contained in it belong.

On motion of Mr. Cassin: Resolved, That the cordial thanks of this Society be presented to Richard C. Taylor, Esq., for his liberality in making the Academy the depository of his mag-

nificent collection of British Organic Remains, this evening received.

Stated Meeting, Aug. 19, 1845.

Vice President Morton in the Chair.

DONATIONS TO MUSEUM.

Mr. J. H. Richard presented several specimens of Corrallines of large size, sulphuret of iron, fossilized wood, a rib and vertebra of an adult whale, and several specimens, in spirits, of different species of fish, crustacea, &c., from the coast of South Carolina.

DONATIONS TO LIBRARY.

A list of the Plants growing spontaneously in the vicinity of Quincy, Florida. By A. W. Chapman, M. D., (from the Western Journal of Medicine and Surgery, Vol. 3, No. 6, new series.) From Dr. C. W. Short.

The Literary Record and Journal of the Linnean Association of Pennsylvania College. July, 1845. Vol. 1, No. 9. From the Association.

Mr. Gambel read a paper intended for publication, entitled "Descriptions of new and little known Birds, collected in Upper California," which was referred to a Committee consisting of Mr. Cassin, Dr. McEuen and Mr. E. Harris.

Meeting for Business, Aug. 26, 1845.

Vice President Morton in the Chair.

The Committee to whom was referred the following paper, read at last meeting, reported in favour of publication.

Descriptions of new and little known Birds, collected in Upper California.†

By William Gambel.

Family LEPTOSTOMIDÆ.

Bill longer than the head, straight except towards the tip; wings short, rounded; tail long, cuneated; feet with two toes before and two behind; tarsus long and stout.

Genus Leptostoma, Swains.

Bill long, stout, entire; straight, except at tip which is hooked; triangular at base, compressed towards the tip. Nostrils lateral, naked, oblong. A wide bare space extending from the eye to the nape. Wings very short, rounded. Tail very long, cuneated. Feathers around the base of the bill rigid, the shafts elongated into black setaceous hairs; the upper eyelid also with a row of very rigid hairs. Feathers of the body very long and woolly; those of the breast, shoulders, wings and tail beautifully variegated, and with long ciliated edging. Tarsus very long and stout, crested.

Leptostoma *longicauda*, Swainson, 1824, in catalogue of birds of Mexican Museum, and in description of the genus in Natural History of Birds, vol. 2, p. 325. Saurothera *californica?* Lesson; S. *Bottæ?* Blainville. Grococcyx *viaticus?* Wagler, Lichtenstein.

Male.—Variegated; feathers of the back part of the head erectile into a crest one and a quarter inches in height, which is steel blue with purplish reflections. Upper part of back and wings, upper tail coverts and two middle tail feathers, brownish green with bronze reflections, those of the former with steel-blue, ochraceous, and white ciliated edgings; those of the latter principally with white. Front of the head, sides of neck and breast, with the centres of the feathers still blue, broadly margined with ochraceous and white. Tail cuneated, of ten feathers, and nearly twelve inches in length, the two outer ones about three inches shorter than the two middle ones, and all except these latter bluish-green, narrowly edged and tipped with white. Body covered with very long silky or woolly feathers; above of a blackish gray colour, below of a grayish white, with a tinge of yellowish-brown, particularly about the thighs and vent. A bare space extending from the eye to the back of the head on each side, where it opens out into a round patch of a vermillion colour. Wings very much rounded, first quill two-thirds the length of the fourth to the tenth, which are nearly equal, the rest of the secondaries scarcely shorter. Primaries and

† A former paper containing descriptions of some new Californian birds, was published during my absence, in the Proceedings of this Society for March and April, 1843.

secondaries dark brown, edged with white at their tips, and with a band of narrow white spots on their outer margin some distance above their tips. Throat greyish-white, with a dusky line on each side. Bill dark horn colour. Feet and legs very stout, the former beneath very scabrous. Tarsus bluish-white.

Length 21½ inches. Tail nearly 12; tarsus 2½, longest toe and nail 1¾. Bill along the ridge nearly 2 inches, depth at base ½ an inch. Wing from flexure about 7 inches.

This extraordinary bird, evidently the connecting linkbetween the scansorial and rasorial orders of birds, was first noticed by Swainson, from a specimen brought from Mexico by Mr. Bullock; and who gave it the above name, though for many years it remained undescribed in the collection of the Zoological Society from not being able to get access to it. In the Natural History of Birds, Mr. Swainson describes the genus and gives also the specific name by which he had distinguished it in 1824 in the catalogue of Bullock's Museum. It was afterwards perhaps described by French as *Saurothera Bottæ*, Blainville; and *S. Californiana*, Lesson; but if they mean the same bird, the description is so inaccurate as to be scarcely recognizable, the locality alone making us suppose it to be the same.

It is found in all the northern provinces of Mexico, where it is called *Paisano*. In California it is not uncommon, and called in some parts of it *Churéa*, and in others *Correcamino*, the astonishing swiftness with which it runs making it well known wherever it inhabits.

Family PROMEROPIDÆ.

Genus, *Harpes.†

Bill longer than the head, arched from base, depressed; upper mandible broad and flattened with the margins very sharp; lower, narrower and somewhat shorter. Nostrils basal, open, rounded. A tuft of hairs at base of upper mandible. Wings short and much rounded. Tail long, cuneated. Feet and legs long and stout. Tongue short and flat. Colours plain.

Harpes **rediviva*. Promerops de la Californie Septentrionale, La Perouse, Atlas to voyages, plate No. 37.

Glossy brown above; beneath from lower part of breast ochraceous, approaching to rufous on the vent and lower tail coverts. Throat greyish white, lower part of neck, breast and sides brownish, somewhat lighter than that of the back. A dusky line runs along the side of the throat from base of lower mandible. Ears large and open, auriculars loose and somewhat rigid, the shafts white, with the sparse hairy webs dusky. A dirty white line over the eye. Tail 5¼ inches in length, cuneiform; beneath tinged with the fulvous colour of belly, and with traces of narrow dusky bars throughout its whole extent; two outer feathers about an inch shorter than middle ones.

Wings short and rounded; extent of both 12½ inches, each from flexure 4 inches. 1st primary about half the length of the 3d, which is shorter than 7th, 8th and 9th; 4th, 5th and 6th equal and longest. Tarsus 1½ inches; hind toe and nail, which is curved, 1 inch, the nail being about as long as the toe. Total length

†From Ἁρπη, a sickle, hook or bill.

12 inches. Bill black, along ridge 1 and 5-8th inches, inner surface of upper mandible almost flat, the edges sharp and projecting; each mandible triagonal; the lower narrower than the upper. Eyes projecting. Irids hazel.

This curious bird was first seen by the naturalists in La Perouse's expedition, as he tells us, who considered it a Promerops; and he merely remarks on it, "we killed and prepared a Promerops which most ornithologists believe peculiar to the ancient continent," and gives no further description of it.

The figure given in plate No. 37 of the Atlas is very inacccurate in every respect, except as regards size; the tail of the bird is not so graduated and tipped as in the figure, and although the breast alone is showed, the broad pectoral band and white throat is not given: the black line over the eye also is incorrect; however, it is nearly as good as the figure of the Californian Quail.

No further account of this bird (as far as I can learn) has been given since the time of La Perouse until now, and it is rather singular that so many travellers should have passed through the country it inhabits without finding it, from which I infer its rarity even there. Both specimens which I have seen were shot on the ground, near Monterey, in Upper California.

Veillot and Lotham also mention this bird, merely quoting La Perouse's words, of course giving neither name or description.

Parus, Linn.

Parus **inornatus*. Male.—Crested: above olive brown; beneath greyish white, with a slight tinge of brownish on the flanks. Front close to bill, round the eye and ears grizzled grey. Crest high and pointed like that of the *P. bicolor*. Bill and feet leaden-blue, the former very stout and blunt. Wings and tail dark-brown, the feathers edged with the same colour as the back; some of the primaries also with a faint edging of whitish. Irids wood-brown. 1st primary half the length of the 2d; 4th 5th and 6th equal. Extent of wings a little over 8 inches. Wing from flexure 2⅝ inches. Tail nearly even 2¼ inches. Total length 5⅝ inches.

Upper California, common—frequenting the evergreen oaks in company with the other western species.

Parus **fasciatus*. Male.—Feathers of the head elongated, erectile into a crest; head greyish brown, inclining to bluish grey on the cheeks and sides of the neck. Back, rump, margins of wing and tail feathers olive brown. Beneath pale rufous, slightly mingled with bluish grey about the throat and breast, and with brownish about the flanks and vent. Wings and tail dusky brown, the latter distinctly barred throughout with a darker colour, having from 20 to 25 bars, the quill feathers also barred in the same manner on their inner webs. Bill and feet dark horn colour. Feathers between nostrils and eye whitish. Wings short and rounded. 1st quill an inch shorter than 5th, 6th and 7th, which are longest. 3d shorter than 9th to 12th, from flexure 2¼ inches. Tail very long, cuneated. 3¼ inches in length, two outer feathers 1¼ inches shorter than middle ones. Tarsus long and slender, 1 inch. Total length about 5 inches, extent of wings the same.

This very distinct species, after having once discovered, I found to be quite

common in California, frequenting the bushy margins of streams and weedy places, with the intermediate habits of a titmouse and wren; both of which in some respects it resembles. For the present I place it in the Genus *Parus*, but think its bill and other peculiarities render it worthy of being separated from it.

The bars on the tail and wings in some specimens are more indistinct than in others.

MERGULUS, Ray.

MERGULUS, * *Cassinii*.† Head, back, wings and tail deep glossy black; breast, belly, vent, spot above and below the eyelids white; throat, neck and sides greyish black or plumbeous, the feathers of the scapulars, lower part of back and rump tinged with the same. Bill larger and stouter than that of the *M. alle*, and with a yellowish white spot or band across the base of lower mandible; wings without any white in them. Front part of feet and legs sky-blue, behind black.

Length to end of tail 7½ inches. Tarsus 1 inch. Bill nearly ¾ of an inch.

This new species frequent along the coast of California; may readily be distinguished from the *M. alle*, which it resembles, by the absence of any white in the wing; the size of the bill; and as it turns in the dried specimen, the orange spot at base of lower mandible; and by the sides being coloured like the throat.

Further notices of the character and habits of these birds I hope to give in a future paper, containing a list, with remarks on the birds which I observed in Upper California.

Descriptions of New North American Coleoptera.

By DANIEL ZIEGLER, of York, Pa.

PHILONTHUS, Leach.

P. *ater*. Black, polished; antennæ and palpi reddish-brown; dorsal thoracic punctures six. Length 3 lines.

Head with a transverse series of four punctures between the eyes, the two intermediate ones slightly impressed; a deeply impressed puncture each side above and two or three scattered ones behind the eyes; a transverse series of two or three obsolete punctures each side at base. Antennæ shorter than the thorax, reddish-brown; third joint much longer than the second; 4—10 joints subequal, transverse; terminal joint much longer and a little thicker than the preceding one, obliquely truncate. Mandibles at tip, and palpi, reddish-brown. Thorax black, highly polished; wider than the elytra, contracted anteriorly; base with the posterior angles regularly and strongly rounded; apex truncate, the anterior angles slightly rounded and deflexed; dorsal punctures six, three in each series, and three or four scattered lateral ones. Scutellum rather large, black, impunctured. Elytra black, shining, a little longer than the thorax; sparsely and obscurely punctured, slightly hairy. Tergum black, tinged with blue, pubescent. Venter, posterior margins of the segments obsoletely edged with rufous. Feet, femora dark-brown; knees, tibiæ, and tarsi, paler. Inhabits Pennsylvania.

† In honor of the Ornithologist, Mr. John Cassin, of Philadelphia.

Tachinus, Gravenh.

T. *puncticollis*. Chestnut-brown; thorax with two punctiform impressions on the middle near the basal margin; elytra yellowish-testaceous. Length 4 lines; breadth 1¾ lines.

Head dark chestnut-brown. Antennæ, four basal joints rufo-testaceous; remaining joints fuscous, excepting the terminal one which is dull-yellowish at tip. Clypeus and palpi rufo-testaceous. Labrum pale yellowish. Thorax, at base slightly narrower than the base of the elytra, transverse, base subrectilinear, sides rounded and marginate, angles obtusely rounded, anterior ones deflexed; two punctiform impressions on the middle near the basal margin, between which is an abbreviated longitudinal impressed line; dark chestnut-brown; highly polished. Scutellum rather small, impunctured, somewhat dusky. Elytra punctured; yellowish-testaceous, with the lateral edges and suture posteriorly, and the apical margin dusky. Pectus and feet, dull yellowish-rufous. Abdomen punctured, dark chestnut-brown. Inhabits Pennsylvania.

Somewhat like T. *crassus*, Gravenh., but differs in the punctiform impressions of the thorax, in being much wider in proportion to its length, and in its depth of colouring; in the present species the body is chestnut-brown, whereas in *crassus* it strongly inclines to black. Can it be a variety of that species?

Phœnops, Megerle.

P. *luteosignata*. Blackish; elytra each with three yellowish or ferruginous spots. Length 5½ lines; breadth 2½ lines.

Phœnops luteosignata, Dej. Catal.

Head coarsely punctured; a shallow, longitudinal indentation on the front. Antennæ bluish-black. Thorax numerously punctured each side, punctures very much dilated, and sometimes confluent; on the disk, the punctures are less obvious, presenting rather a corrugated appearance; a broad, shallow indentation each side behind the middle, converging posteriorly near the basal margin, and a large profound punctiform impression before the scutel. Elytra black, with a bluish tinge, granulated; a dull yellowish or ferruginous spot arising near the base and running backward to before the middle, then curving regularly inward, and nearly attaining the suture; a small triangular spot on the middle near the lateral margin, and another near the tip. Beneath dark cupreous, polished. In the cabinet of Prof. Haldeman. Inhabits Georgia.

Agrilus, Megerle.

A. *quadriimpressus*. Blackish-cupreous, surface minutely chagrined; a shallow impression each side of the front near the central margin of the eyes Length 3½—4½ lines.

Agrilus acutipennis, Dej. Catal.

Body blackish-cupreous, with a bluish tinge, darker beneath. Head with a longitudinal impressed line on the front posteriorly. Eyes dull yellowish. Thorax transversely rugose, slightly tinged with green; a large shallow indentation before the scutel, and another near the anterior margin, on each side of which is a slight circular impression; lateral indentations profoundly impressed. Scutel blackish-green. Elytra violaceous, finely granulated. In the cabinet of Prof. Haldeman. Inhabits Georgia.

The name *acutipennis* is not more applicable to this than to many others in this genus.

LIMONIUS, Eschscholtz.

L. *definitus*. Black; beneath dark reddish-brown. Length 2½ lines.

Head numerously and confertly punctured; transverse line obtuse, not much elevated, and but slightly emarginate. Antennæ dark-brown or piceous. Thorax deep black; densely and minutely punctured; an obsolete obtuse indented line, obvious in a certain position at base and apex; the sides nearly parallel, slightly contracted anteriorly; anterior angles hardly wider than the head; posterior ones subacute. Scutel suborbicular. Elytra subglabrous, with regularly punctured impressed striæ; interstices numerously punctured. Beneath dark reddish-brown or piceous. In the cabinet of Prof. Haldeman. Inhabits Carolina.

Very closely allied to the *quercinus*, Say, but the striæ of the elytra are more deeply impressed, and the punctures on the thorax more crowded than in that species. The present species has the elytra subglabrous, and the feet reddish piceous; in the *quercinus*, these latter organs are yellowish.

PRIOCERA, Kirby.

1. P. *albomaculata*. Dark reddish-brown; elytra with a large white spot on the middle, tip yellow. Length 4¼ lines.

Body punctured, with numerous, rather long, erect, yellowish-cinereous hairs. Head punctured, punctures shallow, somewhat confluent; vertex prominent. Mandibles reddish-brown at base, tips blackish-piceous. Labrum and palpi dull yellowish, the former slightly emarginate. Antennæ pale yellowish, three last joints, excepting the tip of the terminal one, dark piceous; abruptly terminated in a club; the penultimate and anti-penultimate joints strongly serrated, the last ovoid. Thorax punctured, cylindrical, with obtuse irregular elevations and depressions on the disk; hardly contracted at base; an obtuse, but prominent angle each side on the lateral margin behind the middle. Elytra not striated, numerously punctured, punctures very large and profound; reddish-brown, varied with black; a large white spot on the middle, extending from the lateral margin to the suture, and slightly interspersed with black each side on the lateral submargin; tip yellow, tinged with rufous. Stethidium blackish. Venter reddish-brown, with a lateral yellowish spot on each segment; tip of the terminal segment dull yellow. Feet, anterior pair—femora and tibiæ blackish, coxæ yellow; intermediate and posterior pairs—middle of the femora and tips of the tibiæ blackish, the remaining portions, together with all the tarsi, yellow. Inhabits the U. States.

2. P? *maculata*. Reddish-brown, hairy; elytra with a large black band behind the middle, and three small yellow spots, of which one is on the middle, one a little before the middle, and one on the basal submargin. Length 5⅝ lines.

Head dark brown, obscurely and sparsely punctured, punctures more obvious on the vertex. Mandibles blackish. Antennæ hardly enlarged towards the extremity; basal joint robust, obconic; second short, cylindrical; third elongated; fourth to tenth inclusively, slightly serrated; terminal one ovoid. Thorax finely

punctured, rather much contracted anteriorly; a very slight, obtuse elevation each side before the middle. Elytra with regular series of well impressed dilated punctures, which become obsolete towards the tip; a small yellow spot on the middle near the suture, a lateral one a little before the middle, and another smaller one on the basal submargin; a large black band behind the middle, originating on the suture and extending to the lateral margin, then running forward to near the humerus, but is interrupted by the lateral yellow spot; tip slightly tinged with yellow. Feet dark-brown; tarsi dull yellowish. Venter yellowish-red; posterior margins of the segments honey-yellow. In the cabinet of Prof. Haldeman. Inhabits Carolina.

Trogoderma, Latr.

T. *pallipes*. Dark-brown; feet and elytra pale-testaceous. Length 1½ lines; breadth 1 line.

Body oblong-oval, sericeous, polished. Head dark-brown, confertly and minutely punctured, with a broad shallow indentation on a line between the antennæ. Eyes large, the color of the head. Antennæ, two basal joints subglobular, equal; honey-yellow; terminal joints fuscous. Labrum pale reddish-brown. Mouth and palpi yellowish. Thorax dark-brown, polished; transverse; as wide as the elytra, and somewhat gibbous before the middle; posterior angles prominent, slightly rounded; apex truncate, with anterior angles subacute, and deflexed. Scutel brown, triangular. Elytra pale-testaceous, slightly varied with fuscous; widest behind the middle; posterior, inner and outer angles obtusely rounded; thinly and irregularly covered with short cinereous hairs. Beneath reddish-brown, yellowish-sericeous. Feet pale-testaceous. Inhabits Pennsylvania.

Elodes, Latr.

1. E. *debilis*. Dark reddish-brown; antennæ and feet yellowish. Length 2¼ lines; breadth 1⅛ lines.

Head obsoletely punctured. Antennæ reddish-yellow. Thorax polished, widest behind, contracted anteriorly; angles acute, posterior ones deflexed; convex; somewhat gibbous anteriorly. Scutel reddish-brown, slightly convex, polished. Elytra blackish-brown; obsoletely striated; punctures irregular and obsolete. Femora and tarsi, pale yellow; tibiæ darker. In the cabinet of Prof. Haldeman. Inhabits Carolina.

2. E. *fragilis*. Dark chestnut; thorax dull yellowish. Length 2 lines; breadth ⅞ lines.

Body dark chestnut-brown, sericeous, with short, scattered, yellowish hairs. Head impunctured, polished. Eyes small, black. Antennæ reddish-brown. Thorax dull yellow; impunctured, shining. Scutel triangular. Elytra transversely rugose, with a few dispersed, yellowish hairs. Feet and beneath, reddish-brown. In the cabinet of Prof. Haldeman. Inhabits Carolina.

Eubria, Ziegl. Dej.

E. *thoracica*. Black; lateral thoracic margins, and tarsi, yellow. Length 3½ lines; breadth 1¼ lines.

Body deep black. Eyes large. Thorax with the lateral margins, and beneath,

yellow; at its greatest width as broad as the base of the elytra, contracted anteriorly; angles subacute, anterior ones deflexed; an indentation each side near the basal margin. Scutellum concave, suborbicular, truncated at base. Elytra black; impunctured; widest behind the middle. Femora and tibiæ piceous; tarsi honey-yellow. Inhabits Pennsylvania.

Cis, Latreille.

C. *thoracicornis*. Blackish-brown; clypeus much elevated, slightly recurved; thorax 2-horned; elytra, posterior half, rufous. Length $\frac{2}{3}$ line.

Head with a dilated, profound, transverse indentation on the front; clypeus very much elevated, slightly recurved, tip emarginate. Thorax minutely punctured; convex; the sides rounded; a little contracted before; two rather long, acute, and slightly recurved horns in the middle of the anterior margin. Elytra dark-brown or blackish; posterior half, rufous; very minutely and rugosely punctured. Beneath dark-brown. Feet paler. In the cabinet of Prof. Haldeman. Inhabits Carolina.

Varies in having the elytra entirely black. The present specimen is probably a male.

Latridius, Herbst.

1. L. *musæorum*. Reddish-brown; elytra paler, slightly tinged with yellow. Length 1 line.

Body yellowish-sericeous. Eyes black. Antennæ dull rufous. Thorax subquadrate, the sides a little rounded; anterior angles somewhat elongated, forming a small obtuse tooth; the posterior angles subacute. Elytra pale yellowish-brown, with regular series of minute punctures; yellowish-sericeous. Venter the color of the elytra. In the cabinet of Prof. Haldeman. Inhabits Carolina.

2. L. *unicolor*. Dark chestnut; eyes black; elytra with finely punctured striæ. Length 1 line.

Dark chestnut-brown, glabrous, numerously punctured. Head, punctures very minute. Palpi dull yellowish. Thorax numerously and finely punctured; a little contracted before; angles obtuse, anterior ones somewhat depressed. Scutellum small, transverse, rounded behind. Elytra regularly striated; striæ finely punctured. Body beneath finely punctured. In the cabinet of Prof. Haldeman. Inhabits Carolina.

Mycetophagus, Fabr.

M. *pini*. Dark reddish-brown; antennæ and feet dull rufous. Length $2\frac{1}{2}$ lines; breadth $\frac{2}{3}$ lines.

Body rather sparingly covered with short, yellowish, cinereous hairs. Head with rather obvious, confluent punctures on the front; occiput very minutely and confertly punctured. Eyes black. Antennæ and palpi dull rufous. Thorax numerously and confluently punctured; a small shallow impression each side near the base; angles subacute. Elytra blackish-brown, with punctured striæ, the striæ not very obvious; interstices slightly punctured. Feet dull rufous. In the cabinet of Prof. Haldeman. Inhabits Carolina—in pine.

Monotoma, Herbst.

M. *opaca*. Black; elytra with a brownish tinge; antennæ, epipleuræ, and feet, reddish-brown. Length 1 line.

Body elongated, brownish-black. Head with a somewhat dilated, longitudinal impression each side between the eyes. Antennæ and mouth dull reddish-brown. Thorax minutely granulated, contracted before; posterior angles rounded; apex truncate; anterior angles rather prominent, terminating in a short, rounded tooth; a dilated dorsal impression each side near the basal margin. Elytra slightly and minutely granulated; deeply tinged with brown; tip of the humerus and epipleuræ, dull rufous. Feet dull reddish-brown. Inhabits Pennsylvania.

Byllodes, Latr.

P. *alternata*. Dark chestnut-brown; antennæ and feet yellowish; eyes and palpi black. Length 1 line.

Body ovate, subglabrous. Head dusky, polished, impunctured. Antennæ, basal half yellowish, remaining joints fuscous. Eyes and palpi black. Labrum dusky. Thorax confertly and minutely punctured; widest in the middle; sides marginated, and slightly indented each side a little before the middle; posterior angles strongly rounded; apex truncate, with the anterior angles deflexed. Scutellum dark brown, rounded at tip. Elytra reddish-brown, somewhat dusky on the middle, changing the shade of color in different positions; densely and somewhat rugosely punctured. Feet, two anterior pairs, and tibiæ and tarsi of the posterior, dull yellowish. Inhabits Pennsylvania.

Varies much in its depth of coloring.

Lycoperdina, Latr.

1. L. *puncticollis*. Reddish-brown; thoracic disk, and two spots on each elytron, black. Length 1¾ lines; breadth ¾ lines.

Head sparsely and very minutely punctured; slightly indented between the antennæ. Antennæ dull yellowish, hairy. Eyes black. Labrum and palpi pale yellowish. Thorax polished, longitudinally indented on the basal margin near the posterior angles, the indentation being contracted anteriorly and terminating in a point; a large black oblong-oval spot, arising from the base and extending to beyond the middle; punctures sparse, and very minute. Scutellum blackish-brown, transverse, regularly rounded behind. Elytra with a few, irregular, and very minute punctures; two black spots on each elytron, confluent on the lateral margin and suture, the smaller one placed at tip, and the other on the middle. Feet dull yellowish, inclining to brown. Beneath dark reddish-brown; posterior margins of the three first ventral segments blackish.

♂ Club of the antennæ very abrupt, equal in length to all the preceding joints taken together, and strongly compressed. In the ♀, the club is comparatively small. Inhabits Pennsylvania.

Var. *a*. Antennal club and head tinged with black.

Var. *b*. Thoracic spot broader, less regularly formed, and reaching near the apex; the spots on the elytra run nearly together, leaving but a small space between them.

2. L. *unicolor*. Reddish-yellow; thorax with two impressed, longitudinal lines on the middle, and an indentation each side on the basal margin. Length 1½ lines; breadth ¼ line.

Body elongate-ovate, polished. Antennæ yellowish-brown, the three terminal joints paler; somewhat hairy. Eyes black. Thorax oblong, narrowed behind; an indentation each side at base near the posterior angles, and two impressed, longitudinal lines on the middle, originating from the base and running nearly parallel to half the length of the thorax. Scutellum, posterior margin slightly dusky. Feet and underside pale yellowish. Inhabits Pennsylvania.

3. L. *testacea*. Pale-testaceous; club of the antennæ, and lateral thoracic margins, dusky. Length 1⅞ lines; breadth 1⅛ lines.

Body subovate, polished, yellowish-sericeous, immaculate. Antennæ reddish-brown, tip dusky; third joint longer than the preceding and following ones; joints 4—8 short, subcylindric; ninth and tenth in the form of a reversed triangle—the latter rather small; terminal one subovate. Thorax dull testaceous, the sides paler; yellowish-sericeous; lateral margins posteriorly slightly dusky; transverse-quadrate; widest before the middle, and hardly narrowed behind; posterior angles prominent, rather strongly excurved; an abbreviated, longitudinal impression each side at base. Elytra color of the thorax, with irregular, minute punctures furnishing hairs. Beneath reddish-brown, somewhat sericeous. Feet dull yellowish, with a brownish tinge. Femora not abruptly clavate. Inhabits Pennsylvania.

The following gentlemen were elected Correspondents of the Academy:

Julius S. Taylor, M. D., of Montgomery Co., Ohio.

Josiah C. Nott, M. D., of Mobile, Alabama.

Errata in last No. of Proceedings.

Page 235, line 12 from top, for "I had found of the strata," read, "I had made of the strata." Line 24, for "Cabaué's Bluffs," read "Cabané's," and wherever the name occurs. Line 26, for "low stage water," read, "low stage of water."

Page 237, line 4 from bottom, for "*may not pumice be found without volcanic action*," read, "*may not pumice be formed without volcanic action.*"

PROCEEDINGS

OF THE

ACADEMY OF NATURAL SCIENCES

OF PHILADELPHIA.

VOL. II. SEPT. AND OCT. 1845. No. 11.

Stated Meeting, Sept. 2, 1845.

Vice President MORTON in the Chair.

DONATIONS TO MUSEUM.

Flowers and leaves of Galactodendron utile, or Cow tree of South America. From Mr. Thos. C. Percival.

Specimen, in spirits, of a Serpent from the Cape of Good Hope. From Dr. Watson.

Dr. Morton deposited some additional vertebræ of the Mosasaurus, from Mount Holly, New Jersey. Also dermoid scales of a fossil Saurian, from the same locality.

Dr. Morton also deposited the crania of two ancient Peruvians, two mound skulls from Missouri, a Hottentot, a Mozambique Negro, and four mummied Egyptian heads.

DONATIONS TO LIBRARY.

Annales des Mines. 4me Serie. Tome VI. Liv. 5 and 6. de 1844. In exchange.

Proceedings of the Boston Society of Natural History. Vol. 1, from page 129 to conclusion, with the title page and index. From the Society.

Dr. Morton offered some remarks on the skulls deposited by him this evening.

1. The four embalmed heads were brought from the Egyptian catacombs, by Dr. C. Pickering. Two present all the characteristics of the Negroid variety, or that in which the negro conformation predominates; the hair, especially in one of them, is long, but harsh and somewhat wiry; in the other it is cut short and presents a finer texture.

A third head of this series also exhibits some mixture of the Negro race, but the little hair that remains is remarkably fine.

The fourth has lost the facial bones, and is therefore not capable of being precisely determined; but judging from the cranium, it is of Caucasian origin, and the hair, which is short and curly, is of a very fine texture.

2. The two ancient Peruvian heads possess great interest. They were obtained by Dr. John Houstoun, an intelligent officer of the British Navy, who politely sent them to Dr. Morton, with the following memorandum: "From an ancient Indian town called Chiuchiu, or Atacama Baja, on the river Loa, eight leagues from Calamo, and on the western edge of the desert of Atacama. Here there are extensive remains of Indian houses, and a loop-holed fortress built of mud. The *huacha*, or native burial place, is in a terrace of soft sandstone, or volcanic tuffa. The bodies are nearly all buried in the sitting posture, with the hands either placed on each side of the head, or crossed over the breast." These crania have been moulded by an artificial process into the upwardly-elongated or sugar loaf form, being thus very high and broad in front, with a short antero-posterior diameter, both the forehead and occiput bearing evidences of long-continued compression. These heads correspond precisely with the descriptions given by the earliest Spanish travellers in Peru, and especially by Cieza and Torquemada, who saw the natives in various parts of the country with heads moulded precisely in this manner;* which was also once in use among the Natchez tribes of the lower Mississippi, and in various parts of Mexico.

3. Two admirably characterized Indian crania, from ancient cemeteries in Missouri, whence they were obtained by a zealous

*See Crania Americana, p. 116.

inquirer into American Ethnography,—Dr. Wistlenius, of St. Louis. Dr. Morton expressed his regret that the very interesting letter of that gentleman to him had been inadvertently mislaid; but he intends to communicate it to the Society as soon as recovered.

4. Two skulls of native Africans, the one a Hottentot, the other a Mozambique. The first of these is the head of a woman, of perhaps five and twenty. It is small in size, with all the strongly marked negro features which are characteristic of these singular people. For these crania, Dr. Morton expressed his acknowledgments to Mr. John Watson, of Cape Town, through his brother, Dr. Gavin Watson, of our Institution.

Stated Meeting, Sept. 9, 1845.

Vice President MORTON in the Chair.

DONATIONS TO MUSEUM.

Mr. A. L. Heermann presented thirty-four finely mounted specimens of the following European birds:

Sylvia phragmitis, Bechst.
" hippolais, Lath.
" trochilus, "
" curruca, "
" rufa, "
" palustris, Bechst.
" aquatica, Lath.
" icterina ♂ and ♀
" arundinacea, Lath.
" phœnicurus, ♂ "
" tithys, Scopoli.
" luscinia, Lath.
Anthus arboreus, Bechst. ♂
" " (young.)
" pratensis, Bechst.
" Richardii, Vieill.
" rufescens, Temm.
Emberiza cia, L. ♂
" hortulana, L.
Loxia curvirostra, L. ♂
Lanius rufus, Briss.
" colluris, "
Picus medius, L.
" minor, "
Hirundo rustica, L.
" riparia, "
Fringilla montana, "
" serinus, "
" chloris, Temm.
" montifringilla, L.
Alauda brachydactyla, Temm.
Motacilla flava, L. ♂
" boarula, Temm. ♂

The Chairman deposited an Araucanian skull, from Dr. Page, of Valparaiso; and also a series of Indian vessels, ornaments, weapons, &c., of the ancient and modern Aborigines of North and South America.

A letter was read from Dr. Julius S. Taylor, of Carrollton, Ohio, dated Sept. 3, 1845, acknowledging the receipt of his notice of election as a Correspondent, and informing the Society of his intention to make further additions to its Geological cabinet, of fossils from his vicinity.

Stated Meeting, Sept. 23, 1845.

Vice President Morton in the Chair.

DONATIONS TO MUSEUM.

An additional collection of mounted European birds presented by Mr. A. L. Heermann, as follows:

Accipiter nisus, Linn.
Oriolus galbula, Linn.
Merula vulgaris, Ray.
Merula
Coracias garrula, Linn.
Yunx torquilla, Linn.
Scolopax gallinago, Linn.
" gallinula, Linn.
Totanus ochropus, Temm.
Tringa alpina.
Charadrius minor, Meyer.
" hiaticula, Lath.
Cursorius Europeus, Lath:
Machetes pugnax, Linn.
Glareola torquata.
Sterna leucoptera.
Thalassidroma pelagica, Linn.

Also the young of the following:

Larus canus.
Œdicnemus crepitans.
Perdix coturnix.
Rallus crex.
Scolopax rusticola.
Vanellus cristatus.

Cone and seeds of Pinus Lambertianus Douglass: from the mountains of Santa Lucea, Upper California. From Mr. Wm. Gambel.

A few Indian arrow heads and utensils, obtained at Catawissa, Columbia Co., Pennsylvania. Presented by Dr. Joseph Leidy.

Skulls of Canis Jackal, C. lupus, and C. latrans. Deposited by Dr. Morton.

Also by the same, the cranium of an Indian of the Fox tribe; also a large earthen vessel and other Indian utensils, taken from a mound near Camden, S. C., by Dr. Wm. Blanding.

Casts of two Isoteles, from Fox river, Illinois, and Cincinnati, Ohio; and one of an Orthoceras, from Chicago. From Dr. Wm. Blanding.

Dr. Goddard presented twenty-eight specimens of agatised wood, from Antigua; thirty specimens of scoriæ and lava, from Mauna Loa, Tahiti; a quantity of capillary lava from the same; and the following shells:

Bulimus Taunaysii, from Brazil; B. ovatus, do. 3 specimens; B ———, from Manilla; Megaspira Ruschenbergiana, from Brazil, 2 spec.; Cyclostoma ———, from Manilla; Auricula bovina, 2 spec.; Conus eburneus; Rotella lineolata; and Murex ———.

Specimen, in spirits of Holothuria ———, taken on the beach at Cape May, N. J. From Dr. Zantzinger.

DONATIONS TO LIBRARY.

Historiæ Naturalis, &c. Johannes Johnstonus, Med. D. concinnavit. Part II. 4to. Amsterdam, 1657. From Mr. Wm. Hembel.

Figures of the most useful, beautiful and uncommon plants described in the Gardener's Dictionary, exhibited on 300 copper plates, to which are added their descriptions and an account of the classes to which they belong, according to Ray's, Tournefort's and Linnæus' method of classification. By Phillip Miller, F. R. S. Vol. 2. Folio. London, 1771. From Dr. Joseph Leidy.

Meeting for Business, Sept. 30, 1845.

Vice President Morton in the Chair.

The Monthly Report of the Corresponding Secretary was read and adopted.

ELECITON.

John Morphett, Esq.; of Adelaide, South Australia, was elected a Correspondent of the Academy.

Stated Meeting, Oct. 7th, 1845.

Vice President Morton in the Chair.

DONATIONS TO MUSEUM.

A variety of seed vessels, from Liberia, Africa. From Dr. Wm. Blanding.

Specimen of Rocellia tinctoria, and of the fruit of Achras mammosa, from S. America. From Mr. Wm. Gambel.

Skins of Buteo solitarius, Peale, Corvus Hawaiensis, Peale, (2 spec.) and Strix brachyotis ?, from the Sandwich Islands. From Mr. J. K. Townsend.

Seeds of a species of Amphicarpa, from the Upper Missouri. From Mr. Edward Harris.

DONATIONS TO LIBRARY.

Plantæ Lindheimerianæ : an enumeration of F. Lindheimer's collection of Texan plants ; with remarks and descriptions of new species, &c. By Geo. Engelman and Asa Gray. (From Boston Journal of Natural History, vol. v.) Boston, 1845. From Dr. Gray.

The Literary Record and Journal of the Linnæan Association of Pennsylvania College. Vol. 1, No. 12. Oct., 1845. From the Association.

Historiæ Naturalis des animaux sans vertebres, par J. B. P. A. de Lamarck. 3me. edition. Tome 3me., 2d partie. Purchased for the Library.

Stated Meeting, Oct. 14, 1845.

Vice President Morton in the Chair.

DONATIONS TO MUSEUM.

Numerous specimens of the following species of fossil fresh water shells, from the shore of White Pond Warren Co., New Jersey. Presented by Joseph Leidy, M. D.

Limneus elodes; L. Galbanus; Planorbis bicarinatus; P. campanulatus; P. parvus; Paludina decisa; Physa ancillaria: Valvata bicarinata? Cyclas ———.

Group of fossil sponges, &c., from the Crag, Suffolk, England; being the original specimen from which the figure in vol. — of Loudon's Magazine of Natural History was made. Presented by Richard C. Taylor, Esq.

Leafy branch of Pinus Lambertianus, Douglass, from the mountains of St. Lucea, Upper California. From Mr. Wm. Gambel.

Dr. Leidy read the following notes on White Pond, Warren Co., New Jersey.

Notes taken on a visit to White Pond, in Warren Co., New Jersey.

By Joseph Leidy, M. D.

In the course of a pedestrian tour, during the latter part of the last summer, accompanied by R. H. Kern, Esq., an artist of this city, while in the northern part of New Jersey, I visited White Pond, in Warren Co. This pond or lake is situated one mile north of the village of Marksboro, is about one mile in circumference, and

received its name from its remarkable appearance, arising from its bed being a deposit of a kind of white shell marl. At a short distance it has quite a wintry aspect, the shore appearing as if covered with snow. On near approach, the ordinary observer will be much astonished, and the naturalist much interested in finding a vast quantity of comparatively recent fossil fresh water shells, which not only cover, but in many places appear to form the shore, extending in breadth and depth for several feet. If a bunch of the Helianthemum corymbosom, which grows here profusely, be pulled up, nothing but shells and their fragments will be found adhering to its roots. These shells are evidently washed from the deposit of marl in the bed of the pond, as the neighboring inhabitants state that the shores receive an accession of them every spring.

With the exception of a small species of Cyclas and some fragments of Unios, the shells are all univalve, and most of them are of the same genera and species as those found in our fresh water, of the present time, a few being extinct. Many of them have adhering to their inside some root-like fibres, which upon examination I find to be a species of Chara.

It was a matter of much surprise to me that I could not find a single living molluscous animal in the pond, and a neighbor informed me "no snails had ever been found, and only a very few muscles with flesh in," in it.

The pond is in a limestone region; its water, from its situation, is necessarily calcareous, but probably at some anterior period of time was much more so, was much more affected by the internal temperature of the earth than at the present time, and then teemed with the animals whose testaceous coverings form the deposit of marl.

It is very evident that the deposit of shell marl belongs to the newer Pliocene of some, or tertiary period of other geologists, from the fact of the existence among the shells of the Limneus galbanus in considerable numbers, which is an extinct species, the abundance of other species now comparatively rare, and the absence of others now common; as for instance, the Planorbis trivolvis, our most common species of that genus, is here completely replaced by the P. campanulatus.

Subjoined is a list of the various fossil shells which I picked up

during several hours search along the shore, with the comparative quantities in which they occur.

Limneus elodes, (Say,) rare.

Limneus Galbanus, (Say,) abundant.

Planorbis bicarinatus, (Say,) abundant.

Planorbis companulatus, (Say,) abundant.

Planorbis parvus, (Say,) abundant.

Paludina decisa, (Say,) moderately abundant.

Paludina: a minute species not determined; extremely abundant.

Valvata bicarinata? (Lea,) extremely abundant.

Physa ancillaria, (Say,) abundant.

Cyclas: a minute species not determined; abundant.

Fragments of Unios, which were too small to distinguish the species.

Mr. James D. Dana submitted the following:

General views on the Classification of Animals.

In Cuvier's classification of animals, the division Radiata includes all invertebrated animals not comprised in either of the subkingdoms, Articulata and Mollusca. Consisting thus only of refuse species, and not limited by positive characters, as Owen states, we should not expect that the group could be a *natural* assemblage. No line of subdivision, however, has yet been made out, which has met with general favor; yet greater precision has been given to our views of the affinities that run through the animal kingdom, by appealing to the nerves, the seat of sensibility and sentiment, as a basis in classification; and in this manner the subdivisions have been characterised as follows, by Dr. Grant.

I. The *Vertebrata*, having a brain and a spinal cord, constitute the Spini-Vertebrata. II. The *Mollusca*, having the nerves forming generally a transverse series of ganglia disposed around the œsophagus, the Cyclo-gangliata. III. The *Articulata* having no proper brain, and the main cord which runs the length of the body, double, the Diplo-neura. IV. The *Radiata*, having a radiate structure in the body, and the nervous ganglia arranged in a circle, Cyclo-neura.

An objection might be made to this system, on the ground of the apparent absence of nerves in some of the lower orders. But a real absence can hardly be concluded, from our inability to distinguish them. Many of these animals show by their voluntary motions and sensibility that nervous influences traverse the body: moreover, nervous matter is secreted in lines. We can therefore only infer the indistinctness, and not the absence of nerves from our ineffectual efforts to trace them out; and we must consequently be guided by general structure, in determining the relations of groups, when the nerves fail of giving aid.

The above arrangement fails, in some respects of presenting a clear idea of the system in nature, although highly philosophical in its general features. A study of the animal kingdom, as has been lately shown, brings to light lines or general systems of development branching up from the lowest Infusoria to the higher grades of life. It is not true that the forms among the *lower* grades are actually copied in any of the imperfectly developed young of the *superior;* yet there is some general analogy, sufficient to indicate that the former commence on the same system of development with some of the latter, although carried essentially out of the direct upward line by the peculiar vital forces of the species. The Rotifera are decidedly crustacean in type. Their stout mandibles are precisely those of the Cyclopidæ in position, and also in general form; and in their mode of reproduction, the animals are closely similar; yet no young crustacean is ever a Rotifer. The latter belongs to the same system of development with the former, but is a distinct branch, from the regular line, characterized by the peculiar natatory organs, which appear to be the analogues of the branchial or basal appendages to the feet in crustacea. The same reasoning applies to the Bryozoa or Flustroid polyps, which are as nearly allied to the Tunicata as the Rotifers to Crustacea.* It is a side-development from the imaginary line, which connects the In-

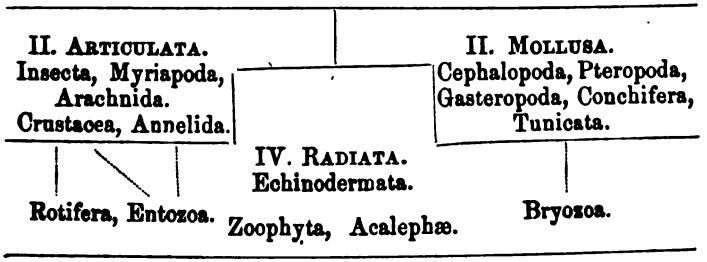
* The Bryozoa have been placed near the Rotifera; but the absence of mandibles, as well as their peculiar type of structure, separates them widely from these crustaceoid species, and allies them as closely to the Tunicata, with which they were first associated by Thomson, under the name of Polyzoa. Lister has a finely illustrated article on this subject in the Philosophical Transactions, for 1834, p. 365.

fusoria with the Tunicated Molluscs. The Entozoa afford other examples, one branch of them passing into the Crustacea through the Lernæidæ and Caligidæ, and the other into the Annelida.

These remarks are intended to support no monad or Lamarckian theory, but only to elucidate the established principle that there are in nature certain distinct systems or types of development. Each species is developed with some reference to one or the other of these systems, but through the agency of the vital forces peculiar to itself—forces which there is reason to believe only creative power can change.

In accordance with these principles, the several orders of animals may be arranged as follows:

I. Vertebrata.



V. Protozoa or Infusoria.

A radiated structure characterizes the simplest form of animal life. Passing up from the monad globule, the structure has its highest development in the Echinoderms. Among Zoophytes, the Hydra forms the first step upward, in which the digestive cavity is a mere sac, which will work equally well inside out, and the mode of reproduction is extremely simple. From this group we pass to the Actinia, in which there is a distinct stomach and a series of fleshy lamellæ around the internal cavity—the first rudiments of an insolation of the function of digestion and generation—but the circulating fluid is only the elaborated chyle mingled with more or less water from without. A step farther and we find separate organs for the functions of the liver, and a circulating system, in some Echinoderms. Through the Bryozoa, the Infusoria are connected with the Tunicata and the other Molluscs; and

through the Rotifera and Entozoa, they connect with the Articulata, thus passing by each way, out of the true Radiate type, into that which characterizes the higher sub-kingdoms. The Bryozoa, Rotifera and Entozoa, may be arranged in sub-kingdom Radiata, or with the Mollusca and Articulata, whose types of structure they exhibited, though under a Radiate form.

The Echinoderms, although so strikingly peculiar in some species—the Echini—yet through the Holothuria bear closely upon the Articulata; while the Acalephs incline towards the Mollusca.

In the above remarks, it is not attempted to trace out all the gradations in the groups referred to, but only the most prominent. The animal kingdom is throughout a net work of affiliations, yet there are main trunks and larger branches, to which the smaller anastomosing ramifications are subordinate. Much study will be required before the system of nature from the Protozoa up, can be correctly mapped out.

Mr. Dana read a notice of a new genus of Cyclopidæ, named by him Corycæus. Referred to the following Committee: Dr. Leidy, Mr. Haldeman and Dr. Pickering.

The Chairman read some extracts from a letter recently addressed to him by Prof. Bailey, of West Point, in reference to the skeleton of the Mastodon lately discovered near Newburg, New York. A more detailed account was promised in a future letter.

Stated Meeting, Oct. 21, 1845.

Vice President Morton in the Chair.

DONATIONS TO MUSEUM.

Specimen of native copper, from Point Keewenon, Lake Superior. From Dr. Pitcher, of Detroit, through Dr. Morton.

Specimens of Conus eburneus, Harpa rosea, Cytherea biradiata, Bulimus concinnus, and Bulimus ———. Presented by Dr. Goddard.

Twenty-six specimens of Minerals, from Spain. Collected and presented by Mr. John C. Fory.

Seeds of Annona cherimolia, from Payta, Peru. From Mr. Wm. Gambel.

DONATIONS TO LIBRARY.

The American Journal of Science and Arts. Vol. 49, No. 2. Oct., 1845. From the Editors.

The latitude of the Cambridge Observatory, Mass., determined by Messrs. Wm. C. and Geo. P. Bond, of Harvard University, and Major J. D. Graham, U. S. Topographical Engineers. By Benjamin Peirce, Professor of Astronomy and Mathematics in Harvard University. From Major Graham.

The Chairman read a note from Mr. J. C. Fory in reference to his donation of minerals of this evening, and enclosing a memorandum descriptive of the same.

A resolution of thanks to Mr. Fory for his donation, was, on motion of Mr. Vaux, tendered by the Society.

Meeting for Business, Oct. 28, 1845.

Mr. Pearsall in the Chair.

The Committee to whom was referred the following description by Mr. James D. Dana, read 14th inst., reported in favour of publication.

Genus Corycæus, (Dana.)

Cyclopidæ cephalo-thorace compresso, 3—4 articulato; oculis medis inconspicuis, sed in frontem duabus lenticulis crystallinis oblatis prægrandibus, et penitus aliis lenticulis prolatis minoribus,

his pigmento instructis; antennis quatuor, anterioribus simplicibus, in utroque sexu æqualibus et brevibus, posterioribus prehensilibus; pedibus duabus subcheliformibus, aliis octo natatoriis; ovario externo simplici.

This genus includes minute marine Cyclopidæ, none of them exceeding a line in length, and mostly not over two-thirds of a line. They are remarkable for the two large hyaline lenses placed in the front of the animal, their compressed form, the short and simple anterior antennæ, while the posterior pair is prehensile, the presence of only two pair of prehensile legs, which are succeeded by four pairs of natatory legs, similar to those in other Cyclopidæ.

Posterior to the two large oblate lenses, wholly within the animal, there are two oblong or prolate lenses, equally pellucid and hyaline in appearance; each situated behind one of the former, though remote from them, and separated by an open unobstructed space. At the posterior extremity of each of the inner, there is a long mass of pigment of an oblong shape, usually of a crimson or blue color, so deep as to be almost black. The structure here presented is so remarkable, that it may be unsafe to offer any conjecture as to the nature of the organs described. Yet after examining hundreds of specimens, I may express an opinion that we have in these animals a *pair of eyes, each with two lenses.* It is known that in water animals the crystalline lens is usually spherical. But here we have an oblate and prolate spheroid combined for the same result. The genus Sapphirina, of Thomson, affords other examples of the same character, which will be the subject of remark at a future time.

ELECTION.

Jacob C. Tremper, Esq., of Yates Co., New York, was elected a Correspondent of the Academy.

PROCEEDINGS

OF THE

ACADEMY OF NATURAL SCIENCES

OF PHILADELPHIA.

Vol. II. NOV. AND DEC., 1845. No. 12.

Stated Meeting Nov. 4, 1845.

Vice President Morton in the Chair.

DONATIONS TO MUSEUM.

Eighteen specimens, in skin, of Birds, from Illinois. Presented by Benjamin B. Brown, M. D., of St. Louis, Missouri—viz :

Numenius longirostris ♂ and ♀
" borealis ♀ and ♀
Tetrao cupido ♂ and 2 ♀
Anser hyperboreus ♂
Anas clypeata ♂
" Americana ♂
" strepera ♂
Anas albeola (young)
Fuligula rufitorques ♂
Limosa fedoa
Rallas elegans ♂
Saturnus Ludovicianus ♂
Icterus phœniceus ♂ and ♀

Also from the same donor, a specimen, in skin, of Sciurus fuliginosus? Bachman, from the Rocky Mountains.

Mr. Cassin presented the following fine collection of African and S. American Birds :

African.

Scops leucotis, Temm.
Malaconotus Barbarus, Linn.
" chrysogaster, Sw.
Coracias Abyssinica, Lath.
Eurystomus rubescens, Vieill.
Scotiornis climaturus, Vieill.

Prionops plumatus, Shaw
Campephaga phœnicea, Lath.
Petrocincla leucoceps, Sw.
" albicapilla, Sw.
Lamprotornis leucogaster, Gm. ♀
Pogonias sulcirostris, Leach
Psittacus Senegalensis, Linn.
Palæornis torquatus, Vig. ♂ ♀
Ispida bicincta, Sw.
Halcyon torquatus, Sw.
Vinago Abyssinica, Cuv.
Dendromus punctatus, Cuv. ♀ ♂
" chrysurus, Sw.
Dendrobates poicephalus, Sw.
Cinnyris pulchellus, Linn.
Œdicnemus Senegalensis, Sw.
Vanellus melasomus, Sw.
" strigilatus, Sw.
Totanus
Ploceus brachypterus, Sw. ♂ ♀

South American.

Cassicus angustifrons, Spix.
Picus lineatus, Linn.
Procnias melanocephalus, Sw.
Nemosia pileata, Gm. ♂ ♀
Psaris pileatus, Jard. and Selby
Thryothurus rutilans, Sw.
Trichas canicapilla, Sw.
(Delafieldii) Aud.
Icterus chrysocephalus?
Agelaius sericeus?
Trochilus viridis, Viell.
" saphurinus, Linn.
" Delalandii, Vieill.
Trochilus mesoleucus? Temm.
" forficatus, Linn.
" magnificus, Vieill.
" cyaneus, Vieill.
" mellivorus, Lath.
" amethystinus, Linn.
" œnone, Lesson
" moschitus, Linn. ♂
" ater, De Wied.
" rufigaster, Less.
" mango, Linn.
" Waglerii? Less.
" Eurynomus, Less.

A collection of sterna of twenty-four species of North American Birds, prepared and presented by Mr. Samuel W. Woodhouse, as follows:

Falco peregrinus
" sparverius
Buteo borealis
" lineatus
" lagopus
Astur Cooperi
Strix nebulosa
Otis vulgaris
Corvus Americanus
Turdus migratorius
Tetrao umbellus
Charadrius semipalmatus
Tringa pectoralis
" Shinsii
Fuligula glacialis
" marila
Larus argentatus
" leucoptera

Lanius borealis	Larus glaucus
Sturnella Ludoviciana	Zema Bonapartii
Fringilla tristis	Podiceps cornutus

Nest of Hirundo fulva, (cliff swallow.) From Mr. Henry C. Hill, of Philadelphia.

Skins of Emberiza citrinella, L.; Fringilla cœlebs, L.; Alauda arborea, L.; from Europe. From a Visitor.

Dr. Morton deposited the following crania, presented to him by Prof. Retzius, of Stockholm, viz: A Swedish peasant; a Swedish woman of the thirteenth century; and a Lapland woman. Also two casts of juvenile skulls, a Laplander and a Swede.

DONATIONS TO LIBRARY.

Bulletin der Konigl: Akademie der Wissenschaften, Munich. Nos. 1 to 55 inclusive; Jan. to Aug., 1843. From the Academy.

Abhandlungen der mathematisch-physikal classe der kœniglich bayerischen Akademie der Wissenschaften, Munich. Vol. 3, part 3. From the same.

Memoire sur le genre Ictides: par M. Valenciennes. Paris, 1835. From Dr. James E. Dekay.

Observation d'une espéce de ver de la cavité abdominale d'une lezard vert-piqueté des environs de Paris, le Dithyridium lacertæ Valenc. Par M. Valenciennes. From the same.

Nouvelles observations sur l'organe electrique du Silure electrique, (Malapterus electricus, Lacépède,) par M. Valenciennes. From the same.

Flora VII Provinciarum Belgii fœderati indigena Davidis de Gorter. 8vo. Batavia, 1781. From Dr. Joseph Leidy.

The Chairman read a letter from Dr. A. McCall, of Abingdon, Va., giving the results of several years observations, made by himself and others, upon the gregarious and migratory actions of insects and animals of this country.

Stated Meeting, November 18, 1845,

VICE PRESIDENT MORTON in the Chair,

DONATIONS TO MUSEUM.

A collection of Sponges, consisting of thirty-three varieties, from the vicinity of Sydney, South Australia. Also, forty specimens of Fossils from the same locality, chiefly of the genera Producta and Atrypa of the carboniferous series, and of the following genera of the Oolitic series, viz.: Crassatella, Panopea, Terebratula and Cirris. Presented by Dr. Charles Nicholson, of Sydney, through Mr. Phillips.

Eggs of twenty-four species of European and American Birds, as follows:

Sylvia cinerea, Lath.	Cathartes aura
Lanius rufus, Briss.	Meleagris gallipavo
" collurio, Briss.	Anas clypeata
Corvus corone, L.	Alcedo ———
Parus cœruleus, L.	Totanus Bartramius
" major, L.	Totanus ———
Fringilla cannabina, L.	Tetrao cupido
" cœlebs, L.	Hirundo republicana
" chloris, Temm.	Avocetta recurvirostra
Picus viridis, L.	Cordylina bicolor
Otis tetrax, L.	Pandion haliætus
Corvus pica, L.	Circus cyaneus

Presented by Mr. A. L. Heermann.

Also, from the same donor, the following mounted specimens of European Birds, viz:

Falco peregrinus, L.	Totanus fuscus, L.
" subbuteo, Ray	Tringa canuta, L.
Circus rufus? Briss.	Podiceps cristatus, L.
Strix brachyotus, L.	" minor
Corvus monedula, L.	Lestris Buffonii
Cuculus canorus, L.	Larus minutus, Pallas.
Numenius pheopus, L.	

Mr. S. W. Woodhouse presented the eggs of the following N. American Birds :

Strix Asio
Picus auratus
Corvus Americanus
Tyrannus intrepidus
Tyrannula fusca
Garrulus cristatus
Sialia Wilsonii
Turdus rufus
" felivox
" migratorius
Charadrius vociferus
Icterus pecoris
" phœniceus
Alauda Ludoviciana
Tetrao umbellus
Perdix virginianus
Cocoborus virginianus
Icteria viridis
Hirundo rufa
Troglodytes œdon
" palustris
Columba Carolinensis
Fringilla socialis
" pusilla
" graminea
" passerina
" melodia
Sylvicola æstiva
Rallus crepitans
Sterna minuta
" hirundo
Ardea exilis
" nycticorax
" alba
" candidissima
Fulica Americana

Also, the nests of sixteen species of North American Birds, and the eggs of several varieties of tortoises and serpents.

Dr. Morton deposited two crania of New Hollanders and casts of three skulls, viz.: Norwegian, Finlander and Lapplander.

DONATIONS TO LIBRARY.

The Literary Record and Journal of the Linnean Association of Pennsylvania College. Vol. 1, No. 12. Oct., 1845. From the Association.

Meteorological observations for the years 1841, '42, '43 and '44. By Benjamin B. Brown, M. D., St. Louis, Missouri. From the Author.

Dissection of a Spermaceti whale, and three other cetaceans, by J. B. S. Jackson, M. D. (From the Boston Journal of Natural History, vol. v. No. 2, Oct. 1845.) From the Author.

Dr. Joseph Leidy stated, as the result of his observation by the microscope, of a portion of a vertebra of the fossil Zeuglodon of Alabama, that it presented all the characters, well defined, of recent bone.

Dr. Morton made the following remarks on the skulls of two natives of New Holland, deposited by him this evening.

After many fruitless attempts to obtain some of the crania of these singular people, I am at length indebted to Dr. Charles Nicholson, an intelligent naturalist of Sydney, for two remarkably well characterised skulls, male and female, respecting which I submit the following notes.

Both these heads have several characters in common; they are thick, ponderous, long and narrow, the forehead being low, and the occipital region remarkably full. The orbits are deep and quadrangular, the bones of the nose short and compressed, and the nasal meatus wide and arched at the sides.

The sutures are throughout remarkable for their simplicity, and in the woman the coronal and spheno-temporal sutures are continuous; an arrangement that is not unfrequent in the negro. In the female head, also, the coronal region is very low. In the man it is higher, and the area of the temporal muscle is particularly conspicuous. This cranium is also marked by several cicatrised depressions of the external table, of which the two largest are on the frontal and parietal bones. These wounds are readily accounted for in the irascible and pugnacious character of the Australian savages.

The preceding characteristics are, in general, analogous to those of the African negro; but a striking osteological difference between the two races consists in the far greater prominence of the face in the Negro than in the Australian. In the former the facial angle was established by Prof. Camper at 75°, and this has been confirmed by nearly one hundred measurements by my own hands. Yet in the two Australians before us, the angle in the man measures 84°, in the woman 81°, or more than the Caucasian mean. This, however, does not result, as we have seen, from a well-formed cranium, but from a fulness of the supra-orbitar region, and the small and non-projecting character of the face. These features of the facial structure are remarkably ex-

emplified in all the profile drawings I have seen of the Australians; for the face is often but little more salient than in the European, while every other characteristic partakes largely of the Negro.

Meeting for Business, Nov. 25, 1845.

Vice President MORTON in the Chair.

The Society, after receiving reports of committees, and transacting some other business, proceeded to ballot for members, when

Mr. Samuel W. Woodhouse, of Philadelphia, was duly elected.

Stated Meeting, Dec. 2, 1845.

Vice President MORTON in the Chair.

DONATIONS TO MUSEUM.

A series of fifteen artificial discoidal stones, varying in diameter from 1½ to 5 inches, from the mounds in the vicinity of Camden, S. C. Collected by Dr. William Blanding, and deposited by Dr. Morton.

Specimen of native copper and native silver in Trap Rock, from Eagle River, south shore of Lake Superior. From Theodore Titus, Esq.

Black oxide in green carbonate of copper, in the conglomerate rock of Copper harbor, south shore of Lake Superior. From H. A. De France, Esq.

DONATIONS TO LIBRARY.

Review of the New York Geological reports. By David Dale Owen, M. D. From the Author.

The Hawaiian Spectator. Vols. 1 and 2; 8vo. Honolulu, Oahu, Sandwich Islands, 1838 and 1839. From Mr. Wm. Gambel.

Magnetical and meteorological observations, made at Washington, under orders of the Secretary of the Navy, dated Aug. 13, 1845. By Lieut. J. M. Gilliss, U. S. N. pp. 648. Washington, 1845. From Lieut. Gilliss.

The History of the Institution, design, and progress of the Royal Society of London. 8vo. From Jacob Tremper, Esq.

Communications were read—

From Mr. Tremper, presenting the above work.

From Mr. Henry Wheatland, dated Salem, Mass., Nov. 10, 1845, requesting on behalf of the Essex Co. Natural History Society of that State, the transmission of the Nos. of the Proceedings of the Academy as they may be published.

From Mr. C. B. Adams, of Middlebury, Vermont, dated Nov. 20, 1845, asking for late Nos. of the Proceedings containing descriptions of N. American Coleoptera.

Stated Meeting, Dec. 16, 1845.

Vice President Morton in the Chair.

DONATIONS TO LIBRARY.

Boston Journal of Natural History, vol. v. No. 2. Boston, 1845. From the Boston Society of Natural History.

Report of the Commissioners to examine the sources whence a supply of pure water may be obtained for the city of Boston. Boston, 1845. From Prof. Johnson.

Also charts of Long Pond and Spot Pond, surveyed under the direction of John B. Jervis, C. E., and Prof. Walter R. Johnson, Commissioners. From the same.

Maps of the vicinity of Boston, showing the sources of water for supplying the city. From the same.

Proceedings of the American Philosophical Society, vol. 4, No. 33. May to Aug., 1845. From the Society.

Extracts d'une lettre de M. Frésnel a M. Jomard sur certains quadrupédes réputés fabuleux. Paris, 1844. From Geo. R. Gliddon, Esq.

A letter was read from N. S. Benton, Esq., Secretary of State of New York, dated Albany, Dec. 5, 1845, in answer to one addressed to him by the Corresponding Secretary, in accordance with a resolution of the Society, directing application to be made for a complete copy of the Natural History of that State for the Library. The Society was informed that no copy was at present at the disposal of the Department.

A paper, by Alfred T. King, M.D., of Greensburg, Pennsylvania, entitled, "Descriptions of fossil foot prints," was read and referred to the following Committee, viz.: Prof. Johnson, Dr. Morton and Mr. Cassin.

Professor Johnson communicated some observations on the relative evaporation from land and water surfaces, and stated the means by which the question had been investigated, referring to the report, a copy of which was presented to the Academy at the last meeting, concerning the water sources near Boston, for a portion of the details of experiments and observations, by which the ratio in question had been established.

The method of research was stated to have comprised, 1st, an observation of the quantity of water falling in rain;—2d, the quantity flowing away by the outlet of the source;—3d, the depth removed from the surface of water by evaporation; and 4th, the relation between the area of ground covered by water, and of that constituting the water shed or drainage, from which, owing to the direction of its slope, the rain falling upon it must necessarily pass into the pond or lake, constituting the source of immediately supply. The plan pursued required of course a determination by actual surveys, of the total area of ground embraced within the district or hydrographic basin, and also that of the water surface at several different stages of height correspond-

ing to the several periods of observation, in order to established the ratio above referred to, between the land surface and the water surface at each of those periods.

With these data, and a simple formula of easy application, it will be found practicable, not only to establish the ratio of supply from the surrounding slopes, to the whole quantity of rain falling during a season, but also the ratio which evaporation on land, bears to that on the water surface.

The quantity, or bulk of water, removed from any source, such as a lake or pond, during any given period of observation, will consist of, *first*, the *draught*, or flow from the outlet; and *second*, of that removed by *evaporation*.

This quantity, determined by actual gauging, is readily referred to the known area of water-surface, simultaneously observed—and the depth to which it would cover the same surface if again restored, is thereby ascertained.

The supply of this quantity may be derived from, 1st, the *store* previously accumulated in the pond or lake; 2d, from *rain* which falls directly on the *water-surface* during the period of observation; or 3d, from the *drainage*, or flow from the surrounding slopes.

When the level of the lake falls during the period of observation, it is evident that something has been taken from the accumulated *store*, and if the amount of depression of level, and the depth of *rain* gauged, be not together equal to the sum of *draught* and *evaporation* observed, it is evident that the *third* source of supply—viz: the *drainage* from the water-shed, must have furnished the balance. If, on the other hand, the level of the source has risen, something has been added to the store of water previously accumulated; and in this case the depth of *rain* and the supply from the *water-shed* have exceeded the sum of *draught* and *evaporation*, and the measures of level and of area show the amount of this excess. In either case the supply derived from the surrounding slopes is easily eliminated, since all the other terms of the equation are known.

From the 7th of August, to the 1st of November, of the present year,—the time in which the observations, surveys and gaugings, required for the purposes above designated, were made in the district of Spot Pond, 9 miles north west from Boston,—the depth

of rain guaged was 10.17 inches; the evaporation from the surface of the pond was 15.07 inches, showing the evaporation to be 48.1 per cent. more than the depth of rain. By an average of five periods of observation into which this time was divided, the ratio of water derived from the slopes to the rain which fell upon them was .1765 to 1, or the actual depth was 1.79 inches. Consequently, the evaporation from the land, and from its vegetable covering, was .8235 of the rain which descended. Hence the ratio between the evaporation from land, and that from water, was .8235 : 1.481 = .556 : 1.

In the district of Long Pond, 18 miles south west from Boston, from the 30th of July to the first of November, the depth of rain was 10.46 inches; and of evaporation 12.78 inches—consequently the evaporation was 22.2 per cent. more than the rain.

The water derived from the slopes of the district was .1839 of the whole fall of rain, leaving .8161 : 1 as the proportion evaporated from the land, or appropriated by vegetation, and the ratio of evaporation from land to that from the water, was consequently .8161 : 1.222 = .697 : 1.

It appears from comparisons of the annual falls of rains for long periods of years, that the quantities of rain above stated, as having fallen in the months of August, September, and October last, at the two sources mentioned, are above the average quantities due to those months, and that consequently the ordinary ratio which, in the neighborhood of Boston, and at the season above specified, may be expected to flow from the land, and be available in water sources is $\frac{.1765+.1839}{2}$ = .1802 or almost exactly 18 per cent. At other seasons, very different proportions between the quantity of rain, and that of evaporation, would be found to prevail. Whether, in the winter season, the same ratio would be found to exist between the evaporation from land, and that from a water surface, as has been found to prevail in summer, is a question still awaiting a practical, experimental determination. The same methods of research, as have been applied in the above cases, would be found applicable to its solution, substituting only in part the fall of snow gauged as water for that of rain, and the evaporation from a surface of ice for that from a surface of water.

The elevated and insulated position of Spot Pond, resting in a

basin composed of igneous rocks, and these partly bare of vegetation, was referred to, as favoring the continuance of the water which falls upon the slopes, for a considerable time in contact with the air, and subjected to evaporation before it reaches the pond. This was considered adequate to account for the small difference .1839—.1764=.0064 between the drainage from that district, and the one found at Long Pond.

Stated Meeting Dec. 23, 1845.

Vice President MORTON in the Chair.

DONATIONS TO LIBRARY.

Memoir on the copper region of Gibara, and of the geology of the N. E. part of the Island of Cuba, with a reconnoisance map. By Richard C. Taylor. From the Author.

Notice of Fossil Arborescent Ferns, of the family of Sigillaria, in the coal formation of Pennsylvania, with an illustrative drawing and map. By Richard C. Taylor. From the Author.

A communication was read from Mr. Edward Harris, entitled "Description of a new species of Parus, from the Upper Missouri," and referred to a committee, consisting of Messrs. Cassin, Townsend and Woodhouse.

A letter was read from Jacob Tremper, Esq., dated Dresden, Yates Co., New York, returning acknowledgments for his election as a Correspondent.

Prof Johnson read the conclusion of his report of an examination and analysis of the alluvial soil of the Nile, from Korosco in Nubia.

The report was adopted, and referred for publication to the Committee on Proceedings.

Meeting for Business and Annual Meeting, Dec. 30, 1845.

Vice President Morton in the Chair.

The Committee to whom was referred a paper by Dr. King, of Greensburg, Pennsylvania, read 16th inst, reported in favor of publication.

Description of Fossil Foot Prints.

By Alfred T. King, M. D.

It is now more than a year since fossil foot prints were discovered in the sandstone of the coal measures in Westmoreland county, Pennsylvania. Since then, numerous localities have been observed, which contain well characterized impressions. Some of these are similar to, and a few identical with, those which I first described, but by far the greatest number are totally different from any which have heretofore been observed.

About three miles from this town, near the summit of the first anticlinal roll, west of Chesnut ridge, one of the principal axes of elevation belonging to the Alleghany range, in a coarse grained sandstone, are eight remarkable impressions, all having the same dimensions, the same distance apart, and forming a continuous series in a slight bent line. Each is of an ovoidal form, 13 inches long, 9 broad, and from 3 to 6 deep. The impression is deep and ovoidal before, but superficial behind, as though made by an animal with a long and flexible pastern.

Twenty-seven miles from Greensburg, on the summit of Chesnut ridge, in a coarse grained sandstone, are numerous imprints, as perfect as they are anomalous and remarkable. These imprints are of different kinds; the greatest number seem to have been made by *ruminant mammals*, as the feet were cleft so as to resemble those of the ox and deer, but much larger. They are of various sizes, and differ from most living types, in having two hind hoofs, which made deep and vivid impressions from one to two inches behind the main track.

The length of the largest, including the posterior imprints, is 9 inches, breadth 5¼ inches.

The smaller vary from 4¼ to 5¼ inches in length, by 2¼ to 4¼ in breadth. The general form of these foot marks is ovoidal, the largest portion being behind as well as the widest part of the

cleft. The posterior impressions are each about the size of a walnut. The interval between each foot mark is about 2½ feet in the larger, and 18 inches in the smaller.

Besides these, and a few others which are identical or nearly so with some which I have already described on a former occasion, there are four or five large imprints of a still more remarkable character than any that have heretofore met my eye. They are in a continuous line: each imprint is 13 inches long, and 9 wide. The toes, which are five in number, are thick and very perfect. Four of these imprints are quite perfect, others are less so, and many are nearly obliterated. The average distance between each impression is 8 feet 7 inches, with the exception of the last two, which are seven feet apart. This seems to indicate that there was once a track between these two, which has been defaced by the erosive action of the elements upon the rock during a series of ages.

The Committee on Mr. Edward Harris' description of a new species of Parus from Missouri, read at last meeting, reported in favor of publication.

Description of a new species of Parus from the Upper Missouri.

By Edward Harris.

Parus septentrionalis. Young, in summer plumage.

Bill brownish black, short and stout. Iris dark brown. Feet greyish blue. Upper part of the head, chin and foreneck dull dark; the black of the head scarcely descending to the hindneck, and that on the foreneck hardly reaching to the breast. Cheeks and sides of the neck, a line running from the base of the bill under the eye and almost meeting on the hindneck, white. Back greyish, slightly tinged with yellow. Quills and tail feathers dark greyish brown, margined with pure white; secondaries conspicuously so. Lower parts greyish white with an almost imperceptible tinge of yellowish under the wings,

Length 5¼. Wing $2\frac{1}{16}$. Tail $3\frac{1}{16}$ inches.

A single specimen of this bird was procured on the 26th of July, on the Yellow Stone River, about thirty miles below its junction with the Missouri. It is evidently a bird of the season, with immature plumage, to which may be attributed the dulness of the black on the head and throat. On comparison of this bird with *P. Carolinensis* and *P. atricapillus*, it will be perceived that, beginning with the smallest bird, the parts which are black, de-

crease, and the white parts increase in size and intensity in ascending. In *septentrionalis* the outer web of the lateral tail feather is entirely white, except a small portion near the base, where there is a slight tinge of grey next the shaft, and the quills, secondaries and all the tail feathers are margined more broadly and with a purer white than in the other species.

I have given a table showing the comparative measurements of the three American species of this division of the genus Parus having black heads, which so closely resemble each other in voice, habits and markings; and have also added some measurements from a paper in the Archives of the Academy, by M. de Selys-Longschamps, Corresponding member of the Royal Academy of Brussels, extracted from their Bulletin, vol. 10, No. 7. I have reduced his measurements to English inches and decimals, and have given my own also in decimals for more ready comparison. It will be seen that his specimen from Iceland (*frigoris*) corresponds so nearly with our *atricapillus*, as to render it probable that it is identical, while his *atricapillus* from Brisson is so near to Audubon's *Carolinensis* as to render it almost certain that the description of *P. atricapillus* by the old authors was from our small southern bird. If this opinion be correct, our *Carolinensis* should resume the name of *atricapillus*, and the larger bird be called *frigoris*, as suggested by M. de Selys-Longschamps.

The note of this bird is similar to *atricapillus*, but its voice more liquid, and less harsh and querulous in the utterance. Bill longer and stouter.

	Length.	Wing.	Tail.	Length.	Wing.	Tail.
Parus Carolinensis	$4\frac{1}{2}$	$2\frac{1}{2}$	$2\frac{3}{8}$ or	4.250	2.500	2.375
" atricapillus	$5\frac{1}{8}$	$2\frac{11}{16}$	$2\frac{8}{16}$	5.125	2.687	2.562
" septentrionalis (nob.)	$5\frac{7}{8}$	$2\frac{13}{16}$	$3\frac{1}{16}$	5.875	2.812	3.093
" atricapillus (Briss.) } from the paper of M. de				4.794		2.397
" frigoris } Selys-Longschamps.				5.149		2.663

It will be seen by the above table, that while in each of the old American species the *wing* is .125, or $\frac{1}{8}$ of an inch longer than the *tail*, in the new bird, the *tail* is .281, or nearly $\frac{3}{10}$ of an inch longer than the *wing*; compared with *atricapillus*, the total length is greater by $\frac{1}{2}$ of an inch, the wing by $\frac{1}{8}$, and tail by $\frac{5}{16}$ or more than half an inch.

The colours in this immature specimen are only to be depended upon as showing the much greater development of the white, and smaller extent of the black markings, than in the other species. For the sake of more easy reference, the description has been made parallel with those of Audubon in his Synopsis. I would propose as an appropriate English name for this bird, the "long-tailed black-cap Titmouse."

Descriptions of New Species of Coleoptera of the United States,
By F. E. Melsheimer, M. D.

Lampyridæ, Latr.

Lygistopterus, Dej. Catal.

L. *lateralis*. Black; thorax with the lateral margins and anterior lateral fourth of the elytra yellow.—5½ l. long; 2 l. wide. Pennsylvania.

Head small, black, produced anteriorly into a rostrum, which is more than half the length of the thorax: antennæ black, joints compressed, second small, subglobular, third slightly longer than the fourth: thorax subquadrate, wider at base than long, where it is nearly as wide as the base of the elytra; sides obtusely rounded before the middle, with the anterior margin strongly elevated and acutely rounded in the middle; black, with the lateral margins broadly yellow; disk slightly convex or carinate, with the lateral margins and posterior edge raised; hind angles prominent, acute; medial line faint: elytra black, with four longitudinally raised lines, interstices reticulate; sutural and lateral edges raised; anterior lateral fourth yellow; sides much inflexed anteriorly under the exterior line: beneath and feet black; pleuræ yellow. Sometimes the medial line is broad and distinct, particularly in small specimens.

Dictyopterus, Latr.

D. *sculptilis*. Piceous; thorax with elevated lines, yellowish each side. Say, Boston Journ. Nat. Hist. Vol. 1, p. 158.

Var. Shoulders yellow, *Lycus axillaris*, Melsh. M. S.

D. *canaliculatus*. Black; thorax with a yellowish margin and an impressed line on the basal margin. Say, Boston Journ. Nat. Hist. Vol. 1, 154.

Var. Shoulders obsolutely rufous, *Lycus graculus*, M. S.

1. D. *floralis*. Black; lateral margins of the thorax broadly yellow. 2½ l. long; 1 l. wide. Pennsylvania.

Black; head small; antennæ compressed, second joint small, third less than the fourth, which is slightly longer than the fifth: thorax subquadrate, as wide as the base of the elytra, wider behind than before, black, with the lateral margins broadly yellow and ordinarily elevated; anterior edge obtusely rounded, and fringed with short black hairs; posterior edge elevated; disk slightly inequal; a roundish impression in front of the scutel; posterior angles excurved, deflexed, rather acute: elytra black, with longitudinal, slightly raised lines, and alternate obsolete ones; interstices with numerous transverse lines; beneath and feet black; pleuræ yellow. This may prove to be the *marginellus* of Fabricius, but the elytra are not sulcated, as is stated to be the case in that species.

2. D. *nanus*. Blackish; lateral margins of the thorax yellowish; elytra punctate-striate. 2 l. long; less than 1 l. wide. Pennsylvania.

Blackish, with a reddish-brown tinge: head piceous; antennæ —, thorax subquadrate, as wide as the base of the elytra, narrow before; black with the lateral margins yellowish and ordinarily elevated; anterior margin raised and acutely rounded; disk slightly convex and inequal, with a short medial groove before the posterior edge, which is raised: elytra punctate-striate,

the interstices fine, convex and transversely rugose; beneath blackish; feet dull brownish.

3. D. *trilineatus*. Black; elytra with three longitudinal raised lines; thorax with the anterior and lateral margins yellowish. 2 l. long; less than 1 l. wide. Pennsylvania.

Black, with a reddish-brown tinge; head piceous; mouth dull testaceous: antennæ blackish, not compressed, with three basal joints piceous, second joint half as long as the third, which is somewhat shorter than the fourth, the latter and fifth sub-equal; thorax as in the preceding species, but the anterior margin is also yellow, and the edge obtusely rounded; the medial groove distinct and nearly entire: elytra black, with a tinge of reddish, and with the anterior lateral fourth obsoletely rufo-piceous; each elytrum with three longitudinal raised lines; lateral edges and suture raised; beneath and feet blackish. The obtusely rounded anterior margin of the thorax, and the peculiar sulpture of the elytra, serve to distinguish this species from the preceding.

LYCHNURIS, Dej. Catal.

L. *morio*. Black; lateral thoracic margins dull testaceous; elytra four-ribbed. 5¼ l. long; 2 l. wide. Pennsylvania.

Black or black-brown; antennæ compressed, black-brown, with the joints sub-equal: thorax inequal, or each side of the middle impressed; triangular, with the sides slightly sinuated a little behind the apex, which is acutely rounded; minutely and densely wrinkled, black, with the anterior and lateral margins dull testaceous: scutel acute-triangular: elytra finely granulate or shagreened with four or rather five longitudinal raised lines, which are more or less abbreviated before the apex: beneath and feet black, with the terminal ventral segment dull testaceous. Form and size of *Lampyris laticornis*, Fab., to which it is closely allied, but it differs from it in having the apex of the thorax more acutely rounded, in the lateral margins being less broadly testaceous, the disk more inequal, and in the raised lines of the elytra being more distinctly defined.

ELLYCHNIA, Dej. Catal.

E. *autumnalis*. Black-brown; sub-margins of the thorax whitish, with a testaceous spot. 4¼ l. long; 2 l. wide. Pennsylvania.

Lampyris autumnalis, Melsh. Catal.

Oblong-oval, black-brown; antennæ moderately compressed, subfiliform, black, with the second joint about half as long as the third: thorax semioval, confertly and minutely wrinkled, with the disk suborbicular-convex, black, glossy; submargins whitish, with an oblong rosaceous spot; exterior margins black and not attaining the apex; basal edge very slightly sinuate; scutel glabrous; elytra finely shagreened, with about three obsolete, longitudinal raised lines; beneath and feet black; pleuræ within the margins whitish, tinged with rosaceous. Bears a resemblance, in the dispositions of the colors of the thorax to *Lampyris corrusca*, Fabr., but it can hardly be confounded with that species, as it is almost three times smaller, and has the elytral lines obsolete. It also resembles *L. nigricans*, Say, but apart of inferiority of size, it differs from that species in having the lateral thoracic margins exteriorly black, and the disk orbicular-con-

vex, while in *nigricans* the lateral thoracic margins are of one color, and the convexity of the disk triangular, the color of which does not attain the apex.

PYRATOMENA, Dej. Catal.

P. *lucifera*. Thorax yellowish, with the disk and a lateral abbreviated vitta black; elytra brown, with the limb yellowish. 4½ l. long; 1½ l. wide. Pennsylvania.

Lampyris lucifera, Melsh. Catal.

Head testaceous, with the eye black; antennæ brown, hirsute, two basal joints and base of the third yellowish or testaceous: thorax longer than wide, with the sides nearly rectilinear and parallel from the base to before the middle, thence to the apex strongly narrowed; apex acutely rounded; yellowish, tinged with rosaceous each side of the middle; a medial anteriorly and posteriorly abbreviated vitta, and a short submarginal one, black: scutel testaceous, truncate at apex: elytra brown, obscurely two-ribbed, with the sutural and lateral margins testaceous: beneath brown, with the terminal ventral segments yellowish: feet brown with the bases of the femora and tibiæ, testaceous. Resembles L. *centrata*, Say, from which, however, it is distinguishable by the outlines of the thorax.

2. P. *fenestralis*. Black; thorax each side of the middle with a rosaceous spot. 4½ l. long; 1½ l. wide. Pennsylvania.

Elongate, parallel, black or black-brown, opake; antennæ compressed, black, with the second joint small, calathiform, third and fourth joints subequal; thorax semioval, black, with a large rosaceous spot each side of the middle; disk with two transverse ridges behind the middle, interrupted by the medial line; basal edge rectilinear between the hind angles; scutellum glossy, truncate at at apex: elytra obscurely two-ribbed, finely shagreened: beneath and feet black; antepectus rosaceous within the lateral margins.

Telephoridæ.

TELEPHORUS, De Geer.

T. *rufiolus*. Black; head, thorax, femora and sides and apex of abdomen rufous. 5½ l. long; 1¾ l. wide. Pennsylvania.

Cantharis rubricollus, Melsh. Catal.

Head rufous, much contracted behind the eyes, rugosely punctured, deeply indented on the front, with the clypeus large, impunctured, shining; palpi and mandibles testaceous, with the tips blackish; eyes prominent, black; antennæ simple, brown, with two basal joints and the base of the following rufous or testaceous, second and third joints subequal, shorter than the following ones: thorax rufous, transverse, with all the margins sub-angularly elevated; sides rounded; anterior edge straight, posterior one sinuate; disk longitudinally concave, with the medial line distinct; scutel rufous; elytra blackish, finely shagreened, obscurely two-ribbed: beneath blackish, with the antepectus, femora, sides and tip of the abdomen, rufous; claws bifid. It may be placed in the genus *Podabrus*, Fisch. It occurs in July, on the Water Lily.

2. T. *dubius*. Black; lateral margins of the throax whitish; antennæ compressed. 3½ l. long; 1¼ wide. Pennsylvania.

Black, shortly and finely blackish hirsute; head glossy black: mouth testaceous; palpi dusky; antennæ black, long, with the joints compressed, second joint very small, somewhat bowl-shaped, third and following joints subequal: thorax transverse, narrower before than behind; anterior margin obtusely rounded; sides straight, and each with a slight nick a little before the middle; posterior edge slightly rounded, with the hind angles acute; black, with the lateral margins whitish; disk with about four obtuse elevations, glossy: scutel glossy; elytra shagreened, opake, very obscurely three-ribbed: beneath and feet black; nails simple?

3. T. *rectus*. Black, parallel; lateral margins yellowish. 3 l. long; ¾ l. wide. Pennsylvania.

Black, finely black hirsute, narrow, parallel; head black, with the mandibles testaceous; antennæ simple, brown, basal joint dusky testaceous, second joint very small, subglobular, piceous, third and following joints equal; thorax transverse-subquadrate, nearly as wide as the elytra; anterior edge with the angles obtusely rounded; basal edge straight, with the angles acute; sides feebly rounded; blackish piceous, with the lateral margins whitish; elytra shagreened, glossy, with the sides parallel; apex obtusely rounded: feet and beneath blackish; pleuræ whitish. Allied to *Cantharis parallela*, Say.

MALTHINUS, Latr.

1. M. *serraticornis*. Black; antennæ strongly serrated; head testaceous. 2 l. long; ¾ l. wide. Pennsylvania.

Cantharis serraticornis, Melsh. Catal.

Black: head rhomboidal, testaceous, with a black fascia between the eyes which are black, prominent; antennæ long, robust, strongly serrated, black; palpi blackish: thorax narrow, transverse, glossy, with the basal edge and hind angles obtusely rounded: anterior edge truncate: elytra abbreviated, dehiscent, rugulose, with a raised line in the middle; wings black: beneath black, piceous; feet black.

2. M. *exilis*. Fuscous: thorax testaceous. 1½ l. long; ½ l. wide. Pennsylvania.

Linear, slender, dark brown; head glossy-black; mouth testaceous; palpi testaceous, with the terminal joint dusky; antennæ long, filiform, fuscous, with two basal joints testaceous, first joint long, clavate, second shorter than the third; thorax transverse, testaceous, margined, with the anterior and posterior edges obtusely rounded; sides straight; glossy: elytra abbreviated, gaping, fuscous, rugulose; a small orbiculate glabrous spot at the tip of each: beneath brown, glossy; tibiæ and tarsi dull testaceous.

Melyridæ.

MALACHIUS, Fabr.

M. *minutus*. Black; head and thorax dull rufous; feet dull testaceous. ¾ l. long. Pennsylvania.

Malachius minutus, Melsh. Catal.

Black, tinged with bluish: head rufous, dusky on the vortex, glossy: eyes black; antennæ fuscous, with two basal joints testaceous: thorax rufous, glossy,

with a medial vitta dusky: elytra blackish, with a bluish, or brownish reflection: abdomen and postpectus blackish; antepectus rufous: feet dull testaceous.

M. *scincetus*, Say. The larvæ of this species is occasionally very hurtful to the cultivated grape vine by destroying the cuticle of the leaves.

Cleridæ, Westw.

Cymatodera, Hope.

C.? *brunnea*. Fuscous; antennæ, feet and abdomen dull rufous. 5½ l. long; 1½ l. wide. Pennsylvania.

Brown, finely and shortly hirsute: head finely shagreened; eyes large, transverse-sub-oval, deep black, feebly emarginate at the base of the antennæ; palpi unequal, dull testaceous, labial with the terminal joint large, securiform, maxillary filiform, with the terminal joint truncate at tip; mandibles black at tip; antennæ simple, dull rufous, slightly thickened towards the tip, basal joint clavate, arcuated, following joints, except the terminal one, short, chronic, subequal, terminal joint as long as the two preceding ones united, slightly arcuated: thorax long, subcylindric, narrowed behind, with the sides obtusely indented before the hind angles; slightly constricted behind the anterior margin; posterior and anterior edges obsoletely piceous; elytra strongly punctate-striate; punctures large, quadrate, the interstices narrow, glabrous: pectus piceous; abdomen and feet dull rufous; posterior tibiæ round at tip with a short spur; posterior tarsi distinctly 5-jointed; claws pectinate.

Opilus, Latr.

1. O. *albofasciatus*. Blackish: elytra with a common white fascia behind the middle. 2½ l. long; ½ l. wide. Pennsylvania.

Clerus fasciatus, Melsh. Catal.

Black or dark brown, pilose, deeply punctured: head with the punctures on the front distant, on the vertex and sides crowded and rugose; antennæ dusky yellowish, the three-jointed clava darker; labrum and palpi dull rufous, the former emarginate, the latter unequal: eyes slightly emarginate at the base of the antennæ: thorax semielliptic, with the truncated part before; rugose on the lateral margins, and with irregular series of profound punctures and inequalities on the disk; elytra dark reddish-brown, punctate-striate, punctures large, profound and together with the striæ obsolete towards the apex; sides parallel; a common white fascia a little behind the middle: beneath blackish, deeply punctured; feet dusky rufous or piceous; posterior tarsi cryptopentamerous. It does not belong to the genus *Clerus*, and very probably neither to the present one or *Opilus*.

O.? *distrophus*. Blackish; elytra with a common white dentate fascia behind the middle, and an angular similarly colored line behind the base. Size somewhat less than the preceding species. Pennsylvania.

Clerus distrophus, Melsh. Catal.

Head black, tinged with rufous, scabrous or shagreened; mouth testaceous; antennæ testaceous, with the distinctly 3-jointed clava longer than joints 2-8 united; palpi ——; thorax black, shagreened, wider in the middle than long, contracted at base, with the sides rounded: elytra very slightly widest behind

the middle; brown, tinged with red, deeply striate-punctate, punctures transverse, and continued to the apex; a common, dentate, white or yellowish fascia behind the middle, and an angular similarly colored line behind the base of each: beneath blackish: feet testaceous. As the eyes of this species are emarginated towards the front, it may belong to Spinola's division B or *Clairones Ichnoides*, but as the palpi and posterior feet of the only specimen in our collection are lost, it is placed provisionally in the present genus.

THANASIMUS, Latr.

1. T. *monilis*. Black, shining; thorax with the lateral margins rufous. 3 l. long; 1. l. wide. Pennsylvania.

Clerus monilis, M. Catal.

" *thoracicus*, "

Black, shining, sparsely hirsute: head minutely and distantly punctured, with an arcuated impressed line between the eyes, sometimes interrupted in the middle; clypeus and base of mandibles, reddish; labrum and tips of the latter, black; antennæ black, with the three joints of the clava distinct; palpi unequal; thorax longer than wide, contracted at base, with sides slightly rounded; an arcuated transverse impressed line behind the anterior margin, and a straight one on the hind margin; a small round indentation each side of the middle; black, with the lateral margins broadly yellowish-rufous; elytra feebly widest behind the middle; shagreened, subglabrous; beneath and feet black; antepectus rufous.

2. T. *bicolor*. Rufous; antennæ, feet and abdomen black; white fascia on the middle of each elytrum. 4. l. long; 1¾ l. wide. Alabama?

Yellowish-rufous, black hirsute, finely shagreened: eyes, antennæ, mouth and palpi, black: elytra each with a white transverse band behind the middle, edged with black and curving backwardly near the suture: abdomen and feet black. In the collection of Dr. Morris. Though I have met with no description of the present or preceding species, yet both are doubtless described. The former was questionably considered by Say as *Clerus thoracicus*, Oliv., but the description of that species by Olivier does not satisfactorily correspond with our *monilis*.

NECROBIA, Oliv.

N. *errans*. Blue, shining; antennæ and feet fuscous. 1¾–2 l. long. Pennsylvania.

Dermestes violaceus, Melsh. Catal.

Blue, blackish hirsute: head with numerous profound punctures, with the mouth and palpi piceous; antennæ dark fuscous or blackish piceous, with the terminal joint ashy-brown: thorax densely and deeply punctulate, with a very narrow impunctured medial space: elytra punctate-striate, punctures quadrate, and together with the striæ obsolete behind the middle, the interstices distantly and very finely punctured: abdomen dull steel: feet fuscous, with a blnish reflection. Generically and specifically distant from *Corynetes violaceus*, L.

ENOPLIUM, Latr.

E. *bimaculatum*. Thorax dull rufous; elytra blackish, with a lunate white spot near the middle. 4¼ l. long; 1½ l. wide. Pennsylvania.

Hirsute: head dark, dull rufous, finely rugosely punctured, slightly indented between the eyes; antennæ dark rufo-piceous, clava ——; labrum testaceous, emarginate; mandibles piceous; palpi ——: thorax dusky rufous, edges blackish; semioval, rugosely punctured, clothed with rufous pile: elytra dark reddish-brown, densely and profoundly punctured on the anterior half, finely and transversely wrinkled towards the apex, and with obscure raised lines; a white curved band behind the middle of each elytrum, band dilated on the lateral margin; an obsolete, dusky spot on the shoulder: beneath brownish; feet chestnut-red; tarsi ——.

PTINIDÆ, Leach.

Ptilinus, Geoffr.

P. *bicolor*. Dull reddish; head and pectus black. 1¼ l. long. Pennsylvania.

Head blackish, opake, minutely and densely wrinkled; antennæ, palpi and feet color of the elytra: thorax strongly convex, finely and not densely scabrous before the middle; dusky: elytra cylindric, dull reddish, with obscure numerous punctures, placed in irregular series: abdomen dusky: pectus blackish. A little larger than *pectinicornis*, Lin., which it much resembles.

PTINUS, Linn.

1. Pt. 4-*maculatus*. Dull rufous, with the antennæ and feet paler; a large black spot on each elytrum. 1½ l. long. Pennsylvania.

Ptinus 4-maculatus, Melsh. Catal.

Oblong-ovate, dull rufous, yellowish-hirsute: head dark, with a longitudinal impressed line in the middle, and behind the eyes with a transverse band of of long rufous pile; antennæ as long as the body, testaceous, with the joints elongated; thorax small, slender, strongly constricted before the base; elytra punctate-striate, each elytrum with a large black patch on the middle, hardly attaining the suture; frequently a small whitish spot at the hind edge of the black one, beneath dark reddish-brown: feet dull testaceous.

2. Pt. *frontalis*. Rufous; front and scutel white pubescent. 1¼ l. long. Pennsylvania.

Rufous, hirsute: head whitish pubescent; antennæ as long as the body, with the joints elongate pale rufous: thorax slightly trituberculate: scutel densely whitish pubescent: elytra dusky on the anterior half; punctate-striate, striæ shallow: beneath and feet paler than above.

Pt. *bimaculatus*. Rufous; a subhumeral spot and pectus white. 1 l. long. Pennsylvania.

Ptinus bimaculatus, Melsh. Catal.

Ovate, dusky rufous, blackish hirsute: antennæ not as long the body with the joints short, obconic, rufous: thorax slightly tuberculate, and like the head rugosely punctured; elytra dusky on the anterior half, with a white pilose spot behind the humerus; punctate-striate: postpectus pilose: feet rufous.

LASIODERMA, Steph.

L. *castaneum*. Castaneous, yellowish pubescent. 1¼ l. long; ¼ l. wide. Pennsylvania.

Ovate, chestnut-red, clothed with a fine, dense yellowish pubescence: head large, with the clypeus broad, and obtusely rounded at apex; palpi small: antennæ pale testaceous, serrated from the third joint, second and third joint small: thorax and elytra impunctured, very minutely wrinkled: scutel small triangular: feet short; tarsi short, pale testaceous: eyes black.

Anobium, Fabr.

1. A. *convexifrons*. Dull castaneous; front rather convex. 2 l. long; ¾ l. wide. Pennsylvania.

Dull chestnut-red, slightly pubescent, finely and densely shagreened: front rather convex; eyes black; antennæ rufous, with the basal joint glabrous, glossy: thorax slightly convex, each side of the middle at base with a slight fovea: elytra without striæ; feet dull rufous.

2. A. *sericans*. Blackish-brown, yellowish sericeous. 2 l. long; ¾ l. wide. Pennsylvania.

Anobium thoracicum, Melsh, Catal.

Black-brown, dull golden sericeous: head black, glossy, glabrous, much and very minutely punctured; antennæ dull rufous: thorax rather gibbose, minutely and somewhat rugosely punctured; each side of the middle toward the base with a small, round impression: a slight, elevated medial line: scutellum obtusely rounded at tip, somewhat inequal on the disk; elytra punctate-striate with the punctures transverse and profound: feet dusky rufous, with the tibiæ and tarsi paler. Bears some resemblance to A. *carinatum*, Say, but it is much more sericeous than that species, and the thorax is not carinate.

3. A. *obscum*. Brownish-red, finely pubescent. 1½ l. long; ½ l. wide. Pennsylvania.

Anobium villosum. Melsh. Catal.

Oblong, brownish-red, finely ashy-pubescent: head paler than the body, finely and profoundly punctured, with a few longitudinal rugæ near the inner margin of the eyes; antennæ color of the feet: thorax very minutely punctured, almost glabrous, anteriorly advanced, with the posterior half of the disk compressed each side: elytra finely punctate-striate: feet rufous or yellowish-rufous. Allied to A. *tenuistriatum*, Say.

4. A. *errans*. Dark rufous; thorax carinate behind. 1½–2 l. long; less than ½ l. wide. Pennsylvania.

Anobium pertinax, Melsh. Catal.

Elongate, dull dark rufous: head very minutely wrinkled; eyes, and mandibles at tip, black; antennæ and palpi pale rufous: thorax very finely punctured and wrinkled, advanced posteriorly, with the basal edge, together with the hind angles and sides rounded; disk carinate towards the base; elytra punctate-striate, punctures transverse: beneath chestnut-brown, or brown-red; feet rufous. Closely allied to A. *pertinax*, Linn., and distinct from A. *carinatum*, Say, with which it was confounded.

Ochina, Ziegl.

O.? *nigra*. Black, hirsute; elytra punctate-striate.

Ptinus niger, Melsh. Catal.

Deep black, strongly blackish-hirsute: head sparsely punctate, with the clypeus obtusely rounded; antennæ approximating, two-thirds the length of the body, 11-jointed, moderately serate, black, hirsute, with the first joint shorter than the fourth, clavate, second and third very small, subglobose, joints 4–10 equal, terminal joint longest, slender, acuminate at tip, three basal joints dull testaceous; palpi testaceous, filiform, terminal joints longest, slender, acutely pointed; labrum very narrow: thorax somewhat inequal, transverse, subcylindric, slightly wider at base, distantly and profoundly punctured: scutellum very small; elytra nearly twice as wide, and four times as long as the thorax; humeri somewhat prominent, thence to near the apex progressively narrowed; punctate-striate, with the punctures profound, close-set, the interstices fine; beneath and femora black; tibæ and tarsi brownish, the latter slender, with the second, third and fourth joints lobed beneath, claw-joint long, slender, armed with two fine almost straight nails.

Hedobia, Ziegl.

H.? *humeralis*. Black; humerus and middle of the thorax transversely fulvous; antennæ serrate. 2½ l. long; l. wide. Pennsylvania.

Ptinus humeralis, Melsh. Catal.

Oblong, robust, black: head pendent, clothed with a dense white pubescence, clypeus sinuate at the base of the antennæ, dilated towards the tip, and there truncate and indented in the middle; labrum small, transverse-quadrate; eyes globular; antennæ not approximating, black, distinctly serrate, 11-jointed, rather more than half the length of the body, with the first joint short, clavate, second small, slightly triangular, joints 3–10 equal, terminal elongate, subcylindric, acuminate at apex; mandibles short, robust, black and acute at tips; palpi filiform, short, testaceous, with the terminal joints acute at the tip; thorax not wider than long, with the sides rounded; posterior edge straight, anterior edge rounded; disk unequal, carinated, clothed with fine pile; black, with the medial convexity triangularly ferruginous; each side of the middle towards the hind angles, with a small, obtuse, whitish tubercle: scutellum subtriangular, rounded at tip, white-pubescent: elytra rigid, nearly twice as wide as the thorax, with the sides parallel from the base to near the apex, which is obtusely rounded: above flattish, obscurely punctate-striate, interstices fine, faintly raised; humerus fulvous; each elytrum with an abbreviated whitish raised line, originating behind the humeral spot: venter and pectus convex, black, whitish sericeous; feet black, sparsely pubescent: tarsi short, with the four last joints dilated: nails fine, short and almost concealed. This insect is placed only provisionally in the present genus: it is probably referable to *Ptinidæ*, but scarcely to any of its present constructed genera. The same may be said of the preceding species or *Ochina nigra*.

Lymexylonidæ, Steph.

Cupes, Fabr.

C. *trilineata*. Pale ferruginous; elytra with three longitudinal raised lines, 6 l. long; 2 l. wide. Pennsylvania.

Dull reddish-brown or ferruginous: head as large as the thorax, with the cra-

nium quadrituberculate, anterior tubercles more robust and obtuse than posterior ones; an entire, longitudinal, impressed line between the tubercles; posterior edge sinuate; surface densely yellowish-ashy pubescent; eyes large, globose, ashy-brown; antennæ long, and like the head densely pubescent; mandibles black; palpi testaceous: thorax small, about half as wide as the elytra, abruptly contracted before the middle, and there each side angularly prominent; pubescent; disk carinate, each side of the crania widely and deeply indented; anterior margin with four oblong impressions; scutel small, subquadrate: elytra five times longer than the thorax, each with three longitudinal raised lines, of which the first and second become confluent a little before the apex, and the first and third are united still nearer to the tip, each line is distinctly alternated with brown and ferruginous, interstices cancellate; sutural and lateral edges raised: pectus and femora dark ferruginous; tibiæ and tarsi color of the elytra. *Cupes cinerea*, Say, Boston Journ. Nat. Hist. I. 168, and a species by the same name, page 169, appears to be distinct; the latter, if not the same, must be closely allied to the present species.

STATYRA, Latr.

S. *ænea*. Green; thorax oblong; elytra punctured; antennæ and palpi yellowish. *Lagria ænea*, Say, Appendix to the Narrative of an Exp. page 287.

Var. b. Black-greenish-brassy, robust. 6 l. long; 2 l. wide.

Var. c. Green, brilliant, very slender. 5 l. long; 1¼ l. wide. *Lagria viridis*, Melsh. Catal.

1. S. *resplendens*. Pale fuscous; thorax and feet yellowish; elytra punctate-striate. 3 l. long; 1 l. wide. Pennsylvania.

Lagria resplendens, Melsh. Catal.

Yellowish-brown: head piceous sparsely punctured, transversely indented between the antennæ, glabrous: labrum and palpi piceous; eyes approximating above and below, black, lunate, hollow side behind; antennæ brown; thorax, subquadrate, truncate before and behind, slightly longer than wide, slightly wider before than behind, where the sides are obviously contracted, with the basal edge raised; yellowish, glossy, obsoletely and remotely punctulate: scutellum small, subtriangular: elytra twice as wide as thorax, slightly widest behind the midle; shining, striate, striæ crenulate at the inner edge, interstices subconvex, impunctured: pectus yellowish: abdomen piceous: feet pale brown.

Var. a. Uniformly yellowish-brown, with the eyes and feet as in the type. *Lagria fusca*, Melsh. Catal.

2. S. *gagatina*. Black, glossy; elytra punctate-striate. Size and form entirely of the preceding species. Pennsylvania.

Black, tinged with bluish, glossy: head as in the preceding, but distinctly distantly punctulate; eyes as in the preceding; clypeus, labrum, palpi, and two basal joints of the antennæ, piceous: thorax, apart of the color, as in the preceding, bnt less obscurely punctulate: elytra sculptured as in the preceding: beneath and feet blackish-piceous; tarsi dull testaceous or pale brown. This is perhaps also a variety of the preceding species.

MORDELLIDÆ, Leach.

Anaspis, Geoffr.

1. A. *dimidiata*. Head and thorax yellowish; elytra, feet and abdomen fuscous. 1 l. long. Pennsylvania.

Head and thorax yellowish-rufous, very minutely punctured, finely pubescent; antennæ and palpi color of the head: scutellum small, color of the elytra, which is mahogany-brown, punctured and pubescent as the thorax: abdomen color of the elytra; postpectus blackish; antepectus yellowish-rufous: feet dusky, dull testaceous, first pair clearer: eyes black.

2. A. *ventralis*. Yellowish-rufous; abdomen fuscous. Size of the preceding. Pennsylvania.

Yellowish-rufous, sericeous: head and thorax very minutely punctured; eyes and antennæ, excepting the three first joints, black: abdomen reddish-brown; tarsi dusky.

3. A. *trifasciata*. Rufo-testaceous; elytra with three black fasciæ. 1½–1¾ l. long. Pennsylvania.

Yellowish-rufous above, sericeo-pubescent, impunctured; antennæ color of the thorax, with the apical half blackish: scutellum color of the thorax: elytra with three common, blackish fasciæ, of which the first covers the scutellar region, the second occupies the middle, the third is apical; the intermediate band is the broadest and rather the deepest colored: feet and pectus as above: abdomen dusky, with a middle space and apex obsoletely rufous: eyes black.

Var. a. As in the preceding, with the sutural and apical fasciæ obsolete, the intermediate one also lightly shaded; abdomen rufous.

MORDELLA, Linn.

1. M. *sericans*. Dark rufous, golden sericeous. 4¼ l. long; 1 1-3 l. wide. Pennsylvania.

Mordella sericea, Melsh. Catal.

Reddish-brown or dark rufous, with a slight bluish reflection, densely and very minutely punctured and transversely wrinkled, golden sericeo-pubescent: eyes dusky: antennæ and palpi yellowish-rufous: abdomen clearer than the elytra; postpectus polished in the middle; abdominal style robust, moderately elongated.

2. M. *marginata*. Black, varied with silvery sericeous spots. 1¾–2 l. long. Pennsylvania.

Mordella marginata, Melsh. Catal.

Black, with numerous irregular whitish sericeous spots: antennæ serrate black, with the four first joints dusky reddish-brown: thorax with all the margins, an entire longitudinal band each side of the middle, an abreviated one towards the hind angles, and an irregular spot behind the anterior angles, silvery-sericeous; all these markings distinctly visible in a certain light; scutellum silvery-sericeous: elytra with the spots disposed into irregular fasciæ: feet and beneath black, the former with the posterior mar-

gins of the central segments, silvery-sericeous; abdominal style black, broadly silvery-sericeous at base.

3. M. *lineata*. Black; elytra with four narrow longitudinal ashy lines. 1½ l. long.—Pennsylvania.

Mordella lineata, Melsh. Catal.

Black: antennæ black: thorax pictured as in the preceding species: scutel yellowish-sericeous: elytra with the sutural and lateral edges, and four longitudinal, posteriorly abbreviated lines, ashy or yellowish: beneath and feet black, ashy sericeous; abdominal segments as in the preceding species.

4. M. *atrata*. Black, immaculate, 1½ l. long.—Pennsylvania.

Mordella atrata, Melsh. Catal.

Black, slightly ashy-sericeous, punctured as is common: antennæ black, with the four first joints dusky: elytra with the sutural striæ distinct, entire; anal style rather elongated, robust.

5. M. *nigricans*. Deep black; four basal joints of the antennæ labrum, and palpi, dull rufous or testaceous. 1 l. long.—Pennsylvania.

Mordella nigricans, Melsh. Catal.

Deep black, sparsely ashy pubescent: antennæ ——, four basal joints dull rufous; labrum and palpi obsoletely dull rufous: thorax and elytra, though finely, yet distinctly punctulate and shagreened; the posterior edge of the former strongly bisinuate; the latter with the sutural striæ entire; anal style elongate, rather slender. This is a slender species.

6. M. *fuscata*. Dark fuscous, golden sericeo-pubescent; anterior feet rufous, 1½ l. long.—Pennsylvania.

Mordella fusca, Melsh. Catal.

Dark brown, densely dull golden pubescent, punctulate and shagreened as is common: antennæ filiform, hardly serrate, testaceous, dusky from before the middle to the tip; mouth and palpi testaceous: beneath and posterior feet blackish, glossy; two front pairs of feet dull rufous; anal style moderately elongate.

7. M. *discolor*. Head and thorax blackish; elytra reddish-brown, with the base and a lateral spot yellowish 1¾ l. long.—Pennsylvania.

Subparallel: head blackish, sparsely yellowish pubescent; antennæ filiform, fuscous, with the four first joints rufous; labrum and palpi dull testaceous, somewhat piceous; thorax blackish, pubescent as the head: scutellum densely yellowish pubescent: elytra dull reddish-brown, with the basal fourth absolutely dull rufous; an irregular basal fascia and a small lateral spot behind the middle, ochraceous: beneath, middle and hind feet blackish; fore-feet and all the ultimate tarsal joints, dull testaceous; anal style moderately elongated.

Var. a. General color of the elytra dull rufous, with a large spot towards the tip, which is ochraceous-pubescent—*Mordella bifasciata*, Melsh. Catal.

Var. b. Lateral elytral spot of the type changed into a fascia.

8. M. *bihamata*. Blackish; elytra, antennæ and anterior feet dull rufous, the first with the apex and two angulate fasciæ ochraceous. 1¾ l. long.—Pennsylvania.

Sparsely ashy-pubescent: antennæ long, filiform, dull rufous; mouth and palpi testaceous: thorax as the head, blackish; short, transverse, margined with ashy pile; elytra dull reddish-brown, each with the tip and two angular spots ochraceous, the front spot behind the base, the hind one a little behind the middle; beneath and hind femora blackish; middle and fore-feet, and tibiæ and tarsi of hind feet dusky dull testaceous: anal style long, slender, dull testaceous at tip.

9. M. *modesta*. Blackish; antennæ, mouth, palpi and anterior feet testaceous; elytra dull reddish-brown, with the tip and two fasciæ ochraceous. 1¼ l. long.—Pennsylvania.

Blackish, sparsely pubescent: antennæ slender, filiform, testaceous; mouth, palpi and anterior feet, testaceous: thorax, middle of anterior margin, lobe and edge of the hind margin, and each side of the middle with a vitta, obsoletely silvery pubescent: elytra dull reddish brown, with the apex, an oblique sinuate spot a little behind the middle, and a similar one behind the base, pale ochraceous: beneath and femora of the middle and posterior feet, blackish, their tibiæ and tarsi paler; anal style moderately long. Differs from the preceding species, which it resembles, in being much smaller, more square, and in having the elytral spots differently shaped.

10. M. *pustulata*. Blackish; elytra dull reddish-brown, maculate with white. 1 l. long.—Pennsylvania.

Sparsely ashy-pubescent: antennæ longish, slender, filiform, brown, with the four first joints testaceous; mouth and palpi testaceous: thorax like the head blackish, sparsely ashy pubescent, not deeply bisinuate at the basal edge: elytra dull reddish brown, with numerous, irregular white pilose spots: beneath and feet blackish; anterior feet and all the tarsi dull testaceous; anal style moderately long, white-sericeous at base.

11. M. *aspersa*. Blackish: elytra obsoletely speckled with white. Size of the preceding.—Pennsylvania.

Blackish, ashy-pubescent: antennæ hardly as long as the thorax, slightly serrate, entirely black; mouth and palpi piceous: elytra black, sliding into dark reddish-brown, obsoletely sprinkled with numerous white points and irregular small spots: all the feet and beneath black; ventral style moderate. Distinct from the preceding species.

12. M. *fuscipennis*. Rufous; elytra fuscous. 2 l. long. Pennsylvania.

Mordella marginalis, Melsh. Catal.

Slender, yellowish-rufous, subglabrous: head very shining, almost impunctured; antennæ filiform, not as long as the thorax, black, with the basal joints rufous; eyes, and mandibles at tip black; palpi and first pair of feet testaceous: scutellum rufous: elytra reddish-brown, with a violaceous reflection; basal margin and suture obviously, lateral edge obsoletely, rufous, the two latter golden-sericeous in a particular light: beneath and feet rufous, with the tips of the tibiæ and tarsal joints black; anal style short.

13. M. *liturata*. Rufous; feet testaceous. 1¼ l. long. Pennsylvania.

Mordella liturata, Melsh. Catal.

Rufous: antennæ as long as the thorax, filiform, feebly serrate testaceous:

palpi similarly colored; eyes black: thorax sparsely pubescent: elytra golden sericeous; beneath and feet rufous or rufo-testaceous.

Sometimes dark rufous; elytra with the apex, a spot on the middle and an oblique one extending from the humerous to the suture, obsolete ly pallid. Perhaps, in accordance with the name *liturata*, the type of the species.

14. M. *lutea*. Testaceous; eyes black. 1 l. long. Pennsylvania.

Testaceous-yellow: antennæ as long as the thorax, filiform, testaceous: thorax less pubescent than the elytra, not profoundly bisinuate at the basal edge; elytra rather attenuated and gaping, densely yellowish-pubescent: feet and beneath as above; tips of tibiæ and aculei of posterior ones black; anal style moderate, rather robust.

15. M. *ornata*. Testaceous; thorax and elytra fuscous, the former with a transverse band, the latter with the shoulders testaceous. 1½ l. long. Pennsylvania.

Slender, testaceous sparsely pubescent; head testaceous, with the vertex and mouth dusky; antennæ slender, filiform, as long as the thorax; eyes black; palpi testaceous; thorax short, dull reddish-brown, with a transverse, sublunate testaceous band a little behind the anterior margin, attaining with the tips nearly the anteri-angles; scutel small, testaceous: elytra attenuated, very slightly gaping, with a large, triangular yellowish humeral spot; intermediate the apex and humeral spots an obsolete whitish-pubescent fascia, which is dilated on the suture: feet and beneath, rufo-testaceous, with the sides of the abdomen dusky; anal style moderate, very slender.

16. M. *limbalis*. Testaceous; disk of the thorax and a vitta on the lateral margins of the elytra, black. 1½ l. long. Pennsylvania.

Very slender, testaceous, slightly pubescent: head testaceous, dusky between the eyes; antennæ ——, base testaceous; eyes black; palpi testaceous: thorax testaceous-yellow, with a dusky oval or rather rhomboidal spot on the disk; anterior angles obsoletely dusky: elytra with lateral margins, suture and basal edge black: feet and pectus, testaceous; abdomen dusky; anal style long, very slender. It is the *Mordella limbata*, Melsh. Catal.

17. M. *discoidea*. Black; head and thorax rufous, the former with a black spot between the eyes, the latter with a similar one on the disk: elytra with the apex and two fasciæ ashy-brown. 1½ l. long. Pennsylvania.

Pubescent: head rufous, with a large blackish spot between the eyes; antennæ and palpi rufous, the former filiform: eyes brown or blackish: thorax color of the head, with a black spot on the middle: scutellum dusky rufous: elytra with the apex and two arcuated fasciæ ashy-brown: beneath and posterior feet color of the elytra or black; intermediate and anterior feet color of the thorax: anal style moderate.

18. M. *fulvicollis*. Fuscous: head and thorax testaceous-yellow. 1 l. long. Pennsylvania.

Mordella fulvicollis, Melsh. MS.

Slender, brown, sparsely pubescent: head and thorax testaceous-yellow: antennæ ——, base and palpi, testaceous: scutel minute, testaceous: elytra with the apex indeterminately pallid: beneath and posterior femora dusky brown, with the tip of the abdomen, anal style, posterior tibiæ and tarsi, and middle and fore feet, testaceous; anal style moderate, slender.

Var. ? a. Antennæ testaceous, slightly serrate; elytra with an obsolete, elongate yellowish basal spot, apex immaculate: tip of venter very slightly rufous. *Mordella eruciata*, Melsh. MS.

19. M. *undulata*. Blackish, elytra with the apex and two undulated fasciæ, ashy. 1 1-5 l. long. Pennsylvania.

Mordella undulata, Melsh. Catal.

Blackish or brown, densely pubescent, with the pile mostly disposed in longitudinal lines: head obscurely maculate with ashy; antennæ and palpi, dusky testaceous, the former short, rather serrate: thorax with the margins, and two longitudinal bands in the middle, obscurely ashy: elytra with the tip and two arcuated bands, ashy: beneath blackish; feet and posterior edge of the postpectus dull testaceous: anal style short, conic.

Var. a. Feet dull pale brown.

Mordella trifasciata. Testaceous, disk of the thorax and three bands on the elytra black. Say, Journ. Acad. Nat. Sci., V. 243.

Var. a. Head blackish on the front; pectus in the middle testaceous. *Mordella pectoralis*, Melsh. MS.

Var. b. Like variety a. with the anterior elytral band wanting.

RIPIPHORUS, Fabr.

1. R. *dubius*. Superior and posterior part of the head, thorax and tarsi dark rufous: elytra and beneath black. 4. l. long. Pennsylvania.

Ripiphorus pectinatus, Fabr. Sys. Eleuth. ii. 1195 ?

Head profoundly, punctured, dark rufous with the face and eyes black; antennæ black, with the basal joints rufous: mandibles dark rufous, with the apical half black: palpi testaceous with the extreme tips dusky: thorax dark rufous densely granulate: scutel and elytra black, the latter with a rufous tinge, and an obsolete testaceous spot behind the base: pectus and abdomen black: the former varied with obscure rufous: the latter with an obsolete rufous spot each side of the basal segment: femora black, with the tibiæ and tarsi, dark rufous. This species differs in several characters from the Fabrician description of R. *pectinatus*.

2. R. *impressus*. Black; thorax dark rufous, strongly transversely impressed in front of the lobe: elytra testaceous, with the apex and a lateral spot black. 4 l. long. Pennsylvania.

Head profoundly punctured, glossy, obtusely rounded on the vertex: antennæ and palpi rufo-testaceous, the former with the processes dusky: thorax dark dusky rufous, densely granulate strongly transversely impressed in front of the basal lobe, which is carinate: elytra testaceous, tinged with rufous, with the apex and an oval submarginal spot near the middle, black: beneath black: feet dull rufous.

Var. a. As in the preceding, with the thorax and femora deep black. As I possess only two specimens of this species I cannot determine which ought to constitute the type.

3. R. *maxillosus*. Dull rufous; mandibles prominent. Size of the preceding. Pennsylvania.

Ripiphorus maxillosus, Melsh. Catal.

Head black, profoundly and rather much punctured, with the vertex obtusely

rounded; medial impunctured frontal space well defined; antennæ and palpi rufous, the former with the processes dusky; mandibles prominent, dull rufous at base, with the apical half black: thorax dark dull rufous, densely granulate, with the lobe slightly carinate, each side of which feebly indented: elytra color of thorax: abdomen rufous: pectus black, varied with dull rufous; feet dull rufous, with the basal half of the femora blackish.

Var. a. As in the preceding, with the elytra black.

4. R. *fasciatus*. Deep black; elytra rufous, maculate with black. 2¼ l. long. Pennsylvania.

Ripiphorus fasciatus, Melsh. Catal.

Deep black; head with the vertex almost regularly rounded, punctured as is common; antennæ testaceous, with the processes dusky; palpi dull testaceous; eyes pale brown: thorax granulate, as is common, with the basal lobe feebly carinate, in front of which slightly transversely indented: elytra rufous, with the base, a large lateral spot near the middle and apex, black; the lateral spot is sometimes confluent with the tip and suture: beneath black; feet dull rufous, with the femora of the posterior ones piceous.

5. R. *ambiguous*. Black; elytra testaceous, with the tip and basal edge black. 3 l. long. Pennsylvania.

Ripiphorus bicolor, Say, Journ. Acad. Nat. Sci. iii. 275?

Deep black: antennæ testaceous, with the processes dusky: palpi dull testaceous: thorax granulate or punctured as is common, with the basal lobe slightly carinate, each side of which indented: elytra pale testaceous, with the tip and basal edge black: lateral edge dusky behind the middle: feet and beneath black.

Var. a. As the preceding, with the thorax very dark dull rufous. The name *bicolor*, has been previously applied by Olivier to another species.

6. R. *longipes*. Deep black: elytra pale testaceous, with the base, a submarginal spot and apex testaceous; feet long. 2½ l. long. Pennsylvania.

Deep black: head with the vertex rather regularly rounded: antennæ testaceous, with the processes blackish: palpi piceous: thorax deep black, with the lateral margins obscurely rufous; basal lobe slightly carinate, and each side before the lobe obsoletely indented; elytra pale testaceous, with the base, an oblong submarginal spot and tip, black: beneath deep black; feet comparatively long and slender, dull rufous, with the femora black, piceous. Resembles much in the general color and the elytral marking of Var. a, of *impressus*, but the present species is much smaller, and the thorax differently indented.

7. R. *thoracicus*. Deep black; thorax dull rufous. 2½ l. long. Pennsylvania.

Deep black: head shining, with the vertex obtusely rounded, blackish-rufous: antennæ black, with the basal joints testaceous: thorax dark dull rufous, with the basal edge black; basal lobe slightly carinate, acute: elytra, beneath and feet deep black, terminal tarsal joints testaceous.

Var. a. As the preceding, with the anterior third of the thorax blackish.

8. R. *niger*. Black; tarsi dull testaceous. 1¾ l. long. Pennsylvania.

Ripiphorus niger, Melsh. Catal.

Black, obscurely tinged with rufous: head with the vertex rather acutely rounded: antennæ blackish: palpi ——: thorax more strongly tinged with rufous than the elytra; basal lobe slightly carinate: elytra, feet and beneath

black; tarsi dull testaceous. There are doubtless specimens of this species which have the thorax rufous.

PELECOTOMA, Fisch.

P. *flavipes*. Black: antennæ, palpi and feet, yellowish. 2¼ l. long. Carolina.

Slender, subcylindric, subparallel, black, pubescent; antennæ brownish with the basal joints testaceous: palpi testaceous: thorax strongly conic: indented each side of the middle at base: elytra entire, minutely shagreened like the thorax and head: beneath blackish: feet testaceous-yellow: nails very small.

(To be continued.)

The following report, the conclusion of which was read at the meeting of 23d inst., was referred for publication to the Committee on Proceedings.

Examination and analyses of samples of the alluvial soil of the Nile, from Korosco, in Nubia.

By WALTER R. JOHNSON.

The specimens about to be described are the same which were on the 21st of January last presented to the Academy, by Mr. Gliddon, from Dr. Richard Lepsius of Berlin, then in Egypt, (see Proceedings of the Acad. vol. 2, p. 195,) and referred to the reporter for examination.

No. 1.—*Earth of the Nile, taken from the summit of hillocks at thirty feet above the present level of the river, about a mile above Korosko.*

This earth is partly in powder and partly in lumps. In some of the latter distant traces of folia, or plies, marking an imperfect stratification, are to be seen. Along these seams fractures often occur. Throughout the lumps are to be observed innumerable cavities or spiracles of a tortuous form, giving the impression of having been produced by some species of vermes. Many of these are lined and some nearly filled up with carbonate of lime. Tubes of the same material are found in a separate state, and some plane surfaces are covered with it. The whole has a light spongy appearance, and, the resemblance is strengthened by the vermicular cavities, which remind one of the white tubes often found traversing masses of common sponge. Very fine micaceous particles are distributed pretty copiously through the masses distinctly perceptible to the eye, and clearly exhibiting their forms under the lens. To the naked eye no ferruginous appearance is discernible, but the microscope shows innumerable points of a deep red color. The mud appears to have been deposited at successive, but not very distant periods;

while soft to have been penetrated by myriads of animalculæ; then dried and baked into a solid mass, imprisoning and destroying the animals, and forming a very porous soil, which, on subsequent exposure to water, strongly impregnated with lime, received so much of the latter as to fill up many of the pores when the water came to be dried up.

Analysis. 1. The existence of roots, stems, or of any other fibrous matter was sought for in vain in this specimen, and the magnet separates from it only minute quantities of magnetic oxide of iron.

2. Fifty grains placed in a syphon-shaped drying tube in which it was exposed to a heat of 212° for thirty minutes, and over which, during the whole time, a current of perfectly dry air, amounting in all to 200 cubic inches was passed, lost by this treatment 2.1 grains or 4.2 per cent.

3. One hundred grains of the soil were boiled for ten minutes in four or five ounces of distilled water, then filtered and washed. The insoluble residuum, separated and dried, weighed 93.5 grains, and is of a reddish grey, slightly varying in color from the original soil. Deducting 4.2 from the loss, the part soluble in boiling water is 2.3 per cent. To the clear solution nitrate of silver imparted a slight milkiness, indicating the presence of chlorine. Chloride of barium, producing no turbidness, implied the absence of soluble sulphates. Oxalate of ammonia, gave evidence of a salt of lime soluble in boiling water. Phosphate of soda and ammonia gave no evidence of magnesia, and ferrocyanide of potassium, none of iron. The liquid slowly evaporated to dryness, left a residuum, which in the bottom of the porcelain basin separated into a yellowish ring of crenic acid, giving the usual impression, first of acidity and then of astringency to the taste, and a central portion of white crenate or carbonate of lime.

4. Another portion of one hundred grains was exposed in a platinum crucible to a dull red heat over a lamp, by which it lost 8.65 grains, showing the insoluble organic matter to be 2.15 per cent. The same portion afterwards exposed for fifteen minutes to a nearly white heat lost in addition 5.3 grains, and became of a light brick red color.

5. A third portion of one hundred grains finely pulverized was placed in a green glass flask. An ounce of distilled water was poured over it, and an open-mouthed tube containing chlorhydric acid was inserted, the mouth closed with a cork traversed by a small glass tube surmounted by a tube containing chloride of calcium. The whole being carefully counterpoised, the acid was by degrees decanted and allowed to act on the soil. Heat was cautiously applied near the close of the operation, bringing the liquid at length to gentle ebullition, but taking care that no pure steam entered the chloride tube. On cooling the apparatus, the air was allowed to pass through a second chloride tube attached to the first, thus avoiding the hygrometric moisture of the air. When the whole apparatus had become cool, heat was again applied and the boiling and cooling repeated with the same precautions, until, on re-weighing, no loss was found to occur between one boiling and another. The final loss of *carbonic acid* was thus ascertained to be 5.55 per cent.

6. Having withdrawn the cork from the flask, more chlorhydric acid was added, and the boiling continued until every thing soluble had been taken up.

The undissolved residuum filtered, washed, and ignited weighed 63.55 grains. It is a powder of a lighter grey than the original soil. Minute particles of white quartz, and some with a reddish tint are discernible by the help of a lens.

7. The solution filtered from the above residuum was treated with sulphydric acid, to ascertain whether lead, copper, mercury, tin, antimony, or arsenic, existed in the soil. A reddish white tint, indicative of a bare trace of antimony, was all which could be procured. The liquid smelling strongly of sulphydric acid, the sulphur was separated, and then the solution was neutralized with pure ammonia.

8. Sulphydrate of ammonia was added, throwing down a copious precipatate of sulphuret of iron and alumina, which was filtered out, redissolved in chlorhydric acid, with a little nitric, and boiled to peroxidize the iron; the solution was then precipitated and boiled with pure potash, separating the iron, which being ignited, weighed in the state of peroxide 8.07 grains.

9. Having acidulated the potash liquid, it was precipitated by ammonia and gave of ignited alumina 2.64 grains.

10. The solution, filtered from the sulphurets, was concentrated, treated with chlorhydric acid, the precipitated sulphur separated, and after neutralizing by ammonia, was precipitated with oxalate of ammonia, allowed to repose 18 hours, then heated and filtered. The oxalate of lime thus obtained, was, after ignition, repeatedly moistened with a solution of carbonate of ammonia, and re-ignited till it ceased to gain weight. The carbonate of lime was 12.6 grains.

11. Ammonio-phosphate of soda applied to the liquid filtered from the oxalate of lime, after the same had been duly concentrated, entirely cooled and neutralized by pure ammonia, threw down ammonio-phosphate of magnesia, which, separated and ignited, gave of phosphate of magnesia, 5.15 grains, equal to 2.06 grains of magnesia, or 4.25 of its carbonate.

From the preceding operations we obtain the following composition of this soil, viz:

	per cent.
Water obtained at 212°,	4.20
Organic matter soluble in boiling water,	2.30
Insoluble organic matter,	2.15
Peroxide of iron,	8.07
Alumina,	2.64
Carbonic acid,	5.55
Magnesia,	2.06
Lime,	7.11
Insoluble silicates,	63.55
Loss,	2.37
	100.

No. 2.—Specimen of the present soil of the Valley of Korosco, taken at a height of three feet above the Nile.

This earth is also partly in lumps and partly in powder. The former exhibit no marks of stratification, and so far as can be observed, have no tendency to part in one direction more than in another. The texture is open and porous, but the pores are not filled as in No. 1, with any deposite of white matter, except here and there a rather light gray in the interior of the cavities. In some of the lumps, minute rootlets are seen traversing the mass in different directions. The color of this soil is considerably darker than that of No. 1, due in part no doubt to the absence of carbonate of lime. Ferruginous particles abound in this, as in the preceding specimen, but those of mica are of far less frequent occurrence.

Time has allowed me to make but a few trials to ascertain the composition of this soil, as it was believed to be of more interest to determine the relative characters of the oldest and of the most recent ones, rather than that of an intermediate period. By twice drying in the inverted syphon apparatus, and in the last instance passing over it 200 cubic inches of air, thoroughly dry, it lost 2.6 per cent. By treatment in the apparatus for separating carbonic acid, and boiling five times successively to expel the last atom of that material, using a solution of pure baryta to ascertain when the escaping air, expelled in boiling, ceased to be mixed with that acid, it was found that the amount of carbonic acid was only 1.7 per cent. equivalent to 3.9 per cent. of carbonate of lime. On separating the soil with the sieve, the finest portion —that passing through the gauze sieve—was found to afford decidedly more magnetic oxide of iron, than specimen No. 1.

No. 3.—Specimen of the earth newly deposited at Korosco, the 18th of August, 1844.

This specimen is entirely in powder, and of a color very nearly approaching that of No. 2.

Particles of mica are of rather rare occurrence. A few minute fragments of straw or grass are detected, and by a gauze sieve, of which the meshes are 100 to the inch, and the spaces to the threads as $2\frac{1}{4}$ to 1 in diameter, making the open space $\frac{7}{1000}$ of an inch square only, 22 per cent. of this earth was arrested. A quantity of very fine fibrous or downy matter was also collected by the seive. Portions of both the coarser and the finer parts of this soil are attracted by the magnet, 4-tenths of one per cent. being found in an average portion of it. On being washed, the coarser part is found to be a sand, composed of quartz, red and white, fragments of schorl, and garnets, of magnetic oxide of iron, a little mica, and a few fragments of tubes, such as are seen traversing the older portions of soil already examined. This composition indicates that this specimen has resulted from the decomposition of primitive rocks, and that their debris has been mixed with some portion of the anterior deposits along the river banks.

Analysis.

1. Dried 100 grains and found the loss, 3.7 grains.
2. Transferred the same to a well closed platinum crucible, and ignited; which

caused an additional loss of 3.57 per cent. The powder having now a dull reddish gray color, was again heated, and with access of air, stirring occasionally with a platinum spatula, to facilitate the complete combustion of organic matter.

By this treatment the additional loss was .13 grain, showing the organic matter in the soil to be 3.70 per cent. To ascertain what part of the matter was soluble, a second portion of 100 grains was placed in a green glass matras and boiled for an hour, with three ounces of a saturated solution of carbonate of ammonia; the clear liquid was decanted, and a second portion of the carbonate added, boiling as before, and in the same way a third portion was subsequently added. The solution being acidulated with acetic acid, acetate of lead was applied, producing when dried, 4.7 grains of crenate of lead, equivalent to 2.28 grains of crenic acid, and showing the insoluble organic matter to be 1.42 grains.

3. Placed the reddened powder of the first 100 grains in a matras, and poured over it an ounce of pure water and half an ounce of pure chlorhydric acid; boiled half an hour, decanted the clear liquid, put in another ounce of water and half ounce of acid, boiled for the same length of time, decanted once more and repeated the operation—then filtered, washed carefully, ignited and weighed the residue, found it 70.2 grains, showing that 22.4 grains of matter have been dissolved by the acid.

4. The solution in chlorhydric acid, reduced to a convenient bulk, was boiled with a little nitric acid, to peroxidize the iron, by which it was changed from greenish yellow to a fine deep red color, and while still hot precipitated with pure ammonia, boiled to condense the precipitate, filtered, washed for more than 24 hours, and until all alkaline reaction ceased.

5. The precipitate was boiled in a strong solution of caustic potash, until the clear liquid yielded with chlorhydric acid the usual indications of a sufficient excess of alkali.

6. The remaining precipitate of oxide of iron was filtered and washed for 12 hours, with hot water, separated, dried, and ignited sufficiently long to reduce the whole to the state of peroxide, which then weighed 9.18 grains.

7. The potash solution was acidulated with chlorhydric acid, and precipitated by carbonate of ammonia, yielding, after being thoroughly washed, dried and ignited, 6.55 grains of alumina.

8. The ammonical solution filtered from oxide of iron and alumina, was treated for phosphate of lime, and afterwards with oxalate of ammonia, and, allowing ample time to precipitate, the oxalate of lime was filtered, washed, converted into carbonate, and in that state weighed, giving 6.7 grains. Converted this, by exposure three times to a white heat, into *caustic lime*, weighing exactly 3.8 grains.

9. The liquid from which oxalate of lime had been filtered, was now with the usual precautions precipitated with ammonio-phosphate of soda, the precipitate cautiously washed, and the double phosphate ignited, giving phosphate of magnesia 5.18 grains, equivalent to 1.89 grains of *magnesia*.

10. To the liquid filtered from ammonio-phosphate of magnesia added sulph.

hydrate of ammonia, and obtained calcined precipitate from the .3 grain of oxide of manganese.

11. A third portion of 100 grains of the soil, treated for *carbonic acid* with all the precautions of boiling the liquid, and alternately cooling off ten times, until the pure baryta showed no more carbonic acid, and the successive weighings gave identical results, the quantity of that ingredient was found to be only 1.4 grains. Hence the soil is composed of

Moisture,	3.70	per ct.	
Carbonic acid,	1.40		
Organic matter,	3.70	viz:	Soluble 2.28 Insoluble 1.42
Insoluble silicates,	70.20		
Oxide of iron,	8.76		
Alumina,	6.55		
Lime,	3.80		
Oxide of manganese,	.30		
Magnesia,	1.89		
Phosphate of lime,	.15		
	100.45		

The excess is here attributable in part to the peroxidation of the iron, which in the soil is partly in the state of magnetic oxide, and in part to the presumed slight amount of potash still adhering to the oxide and alumina.

Sand taken from the thermal spring at Okme, on the Southern frontier of the Province of Butir-el-Hagar, on the Western bank of the Nile—where the temperature of the water is 131° *Fah.*

This sand obviously contains the debris of granitic rocks. Particles of quartz and mica are very abundant, and the magnet takes up a notable portion of magnetic oxide of iron. Particles of highly ferruginous clay are interspersed among it, resembling crumbs of bog iron ore, and leading to the supposition that the heat of the spring is occasioned by the decomposition of pyritous rocks, whose insoluble debris it brings in minute portions to the surface. The gauze sieve already mentioned retains 25 per cent. of this sand, including nearly all the particles of ferruginous clay. The portion which passes the seive, resembles, in almost every particular, the sandy portion washed out of the newly deposited soil, except of course the different degree of its fineness. Both have particles of red and white quarts, both show magnetic oxide of iron, the sand of the spring in the greater abundance. It is remarked that the particles of this oxide in the portion of sand which passes the sieve, is far greater than in that which remains upon it, which we might anticipate, on the supposition that the sand is brought up by the spring. The greater specific gravity of the particles of oxide than that of the quartz, would allow larger masses of the latter than of the former to be thrown up by a current of given velocity.

Bringing together the results of the analysis of the ancient and that of the most recent soil, we find the following composition in 100 parts.

	Ancient soil.	Recent deposite.
Water,	4.20	3.70
Soluble organic matter,	2.30	2.8
Insoluble organic matter,	2.15	1.42
Peroxide of iron,	8.07	8.76
Alumina,	2.69	6.55
Lime,	7.11	3.80
Magnesia,	2.06	1.89
Carbonic acid,	5.55	1.40
Insoluble silicates,	63.55	70.20
Loss,	2.37 Ox. of Manganese .30	
	—— Phosphate of lime .15	
	100	100.45

The *loss* in the analysis of the ancient soil, is attributed in part to the combined water, which no doubt existed in the peroxide of iron, and in part to the chloride of sodium and phosphate of alumina, of which some traces were observed, but of which time did not allow me to make a minute examination, or to repeat the analysis for the purpose of an exact determination of their proportion. The most striking difference between the ancient and the modern soils is to be found in the far higher proportion of carbonic acid, lime, and magnesia in the former, and the greater abundance of alumina and of insoluble silicates in the latter. The matter soluble in water is nearly the same for both, and the oxide of iron widely different.

The Monthly Report of the Corresponding Secretary, and the Annual Report of the Recording Secretary, were read and adopted.

The Annual Report of the Treasurer was read and referred to the Auditors.

On motion of Professor Johnson, Resolved, that the Recording Secretary be directed to make out a new and corrected list of Members and Correspondents of the Institution, with a view to publication.

On motion of Mr. Vaux, Resolved, that the Corresponding Secretary be authorised to transmit to Correspondents, copies of the Catalogue of the Library, as occasion may offer.

After the transaction of some other business, the Society went into an election for Officers for the year 1846. The following result was reported by the tellers:—

PRESIDENT.
William Hembel.

VICE-PRESIDENTS.
J. Price Wetherill,
Samuel George Morton, M. D.

CORRESPONDING SECRETARY.
Walter R. Johnson.

RECORDING SECRETARY.
William S. Zantzinger, M. D.

LIBRARIAN.
Joseph. Leidy, M. D.

TREASURER.
George W. Carpenter.

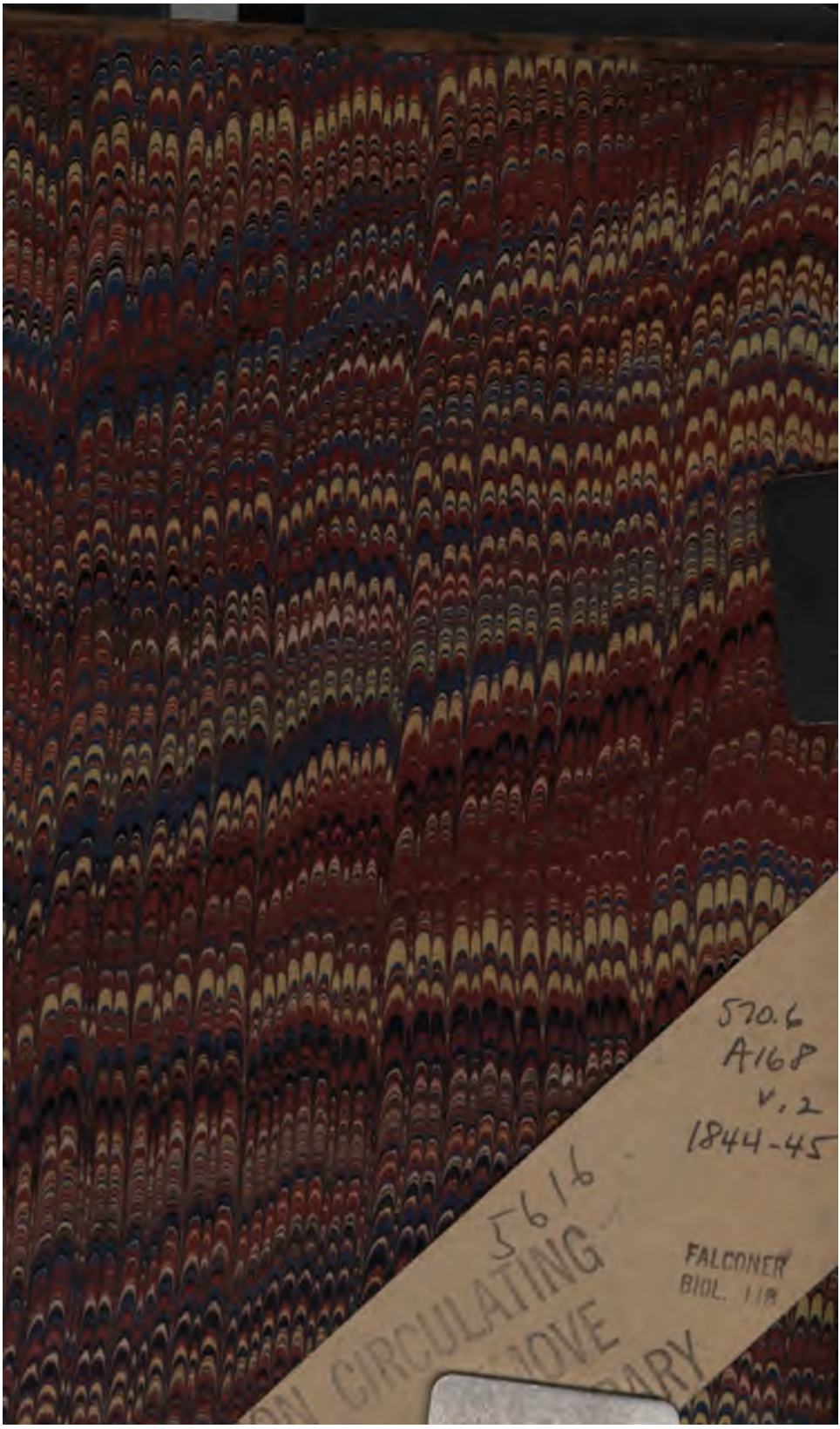
CURATORS.
William S. Vaux,
Samuel Ashmead,
John Cassin.
John K. Townsend,

AUDITORS.
Robert Pearsall,
William S. Vaux,
Robert Bridges, M. D.

PUBLICATION COMMITTEE.
William S. Vaux,
Walter R. Johnson,
Samuel Ashmead,
A. E. Jessup,
William Gambel.

ELECTION OF CORRESPONDENTS.

J. C. M. Boudin, M. D., Surgeon in chief to the Hospital of Versailles, France, was elected a Correspondent.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